REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Ayurveda Samhita evum Siddhant
(M.D. (Ayurveda- Compendium and Basic Principles)

Course Code 250

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Vachaspati – Ayurveda Samhita evum Siddhant

(M.D. (Ayurveda)- Compendium and Basic Principles)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration 3 Years

2.6 Syllabus

Given under curriculum clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same are notified by the CCIM)*

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee

(AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. **Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.**
4. **Scientific writing and publication skills.**
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. **Classical Methods of Research.**
   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati
   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti
6. **Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.**
7. **Different fields of Research in Ayurveda**
   Fundamental research on concepts of Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. **Literary Research-**
   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

   concepts and development of particular body of knowledge.
9. **Drug Research (Laboratory-based)**- Basic knowledge of the following:
   Drug sources: plant, animal and mineral. Methods of drug identification.
   Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

   Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).
10. **Safety aspects**: Protocols for assessing acute, sub-acute and chronic toxicity studies.
    Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12.Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional

studies Prospective &

Retrospectives studies Cohort

studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. **Definition of Statistics** : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research:

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Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	**Pharmaceutical Chemistry** Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	**Awareness of Chromatographic Techniques** Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	**Pharmacognosy** Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	**Pharmacology and toxicology** Familiarization and demonstration of techniques related to pharmacology and toxicology
6	**Biochemistry (Clinical)** Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	**Clinical Pathology** Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	**Imaging Sciences** Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

REFERENCE BOOKS:-

Pharmacognosy:

1. Aushotosh Kar "Pharmacognosy & Pharmacobiotechnology" New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
4. Kokate, CK., Purohit, AP, Gokhale, SB (2010). Pharmacognosy. Nirali Prakashan. Pune.
5. Kokate, CK., Khandelwal and Gokhale, SB (1996). Practical Pharmacognosy. Nirali Prakashan. Pune.
6. Trease G E and Evans W C, Pharinacognosy, Bailliere Tindall, Eastbourne, U K.
7. Tyler V C., Brady, L R., and Robers J E., Pharmacognosy, Lea and Febiger, Philadelphia.
8. Tyler VE Jr and Schwarting AE., Experimental Pharmacognosy, Burgess Pub. Co, Minneaplis, Minnesota.
9. Wallis- TE (2011)- reprint. Practical Pharmacgonosy (Fourth Edition) Pharma Med Press, Hyderabad.
10. Wallis T E, Analytical Microscopy, J & A Churchill limited, London.
11. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003).World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

Pharmaceutical chemistry, quality control and drug standardization:

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
2. Brain, KR and Turner, TD. (1975). The Practical Evaluation Phytopharmaceuticals. Wright Scienctechnica, Bristol.

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3. Galen Wood Ewing (1985). Instrumental Methods of Chemical Analysis. McGraw-Hill College ; Fifth edition
4. Harborne, JB (1973). Phytochemistry Methods. Chapman and Hall, International Edition, London.
5. HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic Pharmacopoeia Vol- III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA. New Delhi.
6. Kapoor, RC (2010). Some observations on the metal based preparations in Indian System of Medicine. Indian Journal of Traditional Knwoledge. 9(3): 562-575
7. Khopkar, S. M. Analytical Chemistry, New Age International Publishers , 3 rd edition
8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
9. Mahadik KR, Bothara K G. Principles of Chromatography by, 1st edition, Nirali Prakashan.
10. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S. Shah Prakashan, Ahmedabad.
11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO-Geneva.
12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants - INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

Biochemistry and Laboratory techniques:

1. Asokan P. (2003) Analytical Biochemistry, China publications,
2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
3. David Frifelder. W. H. Freeman. (1982). Physical Biochemistry by; 2 edition
4. David Sultan (2003).Text book of Radiology and Imaging, Vol-1, 7th Edition.
5. Deb, A.C., Fundamentals of Biochemistry, Books and Allied (P) Ltd, 2002.
6. Harold Varley. Practical Clinical Bio-chemistry
7. Kanai L.Mukherjee. Clinical Pathology:,Medical Laboratory Technology Vol. I.Tata McGrawHill 1996, New Delhi.
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9. Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I.Churchill Livingstone (P) Ltd, New Delhi.2000.
10. Satyanarayanan,U. Essentials of Biochemistry, Books and allied(P) Ltd.2002
11. Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.
12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

Research methodology:

1. Alley, Michael. The craft of scientific writing. Englewood Cliffs. N.N. Prentice 1987.
2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
3. Altick and Fensternmaker. (2007).*The Art of Literary Research*. 4th ed. W. W.

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Norton. Castle, Gregory. *Blackwell Guide to Literary Theory*. Blackwells,
4. Bowling, A. (2002). Research Methods in Health (2nd ed). Buckingham: Open University Press.
5. Day R.A. How to write a scientific paper. Cambridge University Press.
6. Cooray P.G. Guide to scientific and technical writing.
7. Deepika Chawla and Neena Sondhi. (2011). Research Methods- Concepts and cases. New Delhi: Vikas Publishing House.
8. Greenhalgh, T. (2006) How to Read a Paper: The Basics of Evidence-Based Medicine. (3rd ed) Blackwell
9. Kothari- CR (2004). Research Methodology- Methods and Techniques (Second Revised Edition). New Age International Publishers- New Delhi.
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11. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

Drug research and development:

1. RICK NG, (2009). DRUGS- from discovery to approval. John Wiley & Sons, Inc., Hoboken, New Jersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB 925).
3. Jagdeesh, Sreekant Murthy, Gupta, YK and Amitabh Prakash Eds. Biomedical Research (From Ideation to Publication) (2010). Wolters Kluwer/ Lippincott Williams and Wilkins.
4. WHO Guidelines on Safety Monitoring of herbal medicines in pharmacovigilance systems. (2004). WHO- Geneva. ISBN 92 4 1592214.
5. Natural products isolation. (2006) 2nd ed. / edited by Satyajit D. Sarker, Zahid Latif, Alexander I. Gray. (Methods in biotechnology; 20). Includes bibliographical references and index. Humana Press Inc. ISBN 1-58829-447-1 (acid-free paper) – ISBN 1-59259-955-9 (eISBN)
6. Gazette Extraordinary Part- II-Section 3 - Sub section (i) December 2008. Govt of India. AYUSH Guidelines on safety studies- Rule 170 of Drugs and Cosmetics Act.
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8. OECD Guideline for the Testing of Chemicals – Repeated Dose 90-day Oral Toxicity Study in Rodents, 408, 1998. http://browse.oecdbookshop.org/oecd/pdfs/free/9740801e.pdf(latest version)
9. OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring, 1998.http://www.oecd.org/document/63/0,2340,en_2649_34381_2346175_1_1_1_1,00.html
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Non-clinical Safety Studies for t he conduct of Human Clinical Trials for Pharmaceuticals M3 (R1).
11. Ghosh M.N.: Fundamentals of Experimental Pharmacology, *Scientific Book Agency.*
12. *Bombay.*\
12- Jaju B.P.: Pharmacological Practical Exercise Book, *Jaypee Brothers, New Delhi.*
13- Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan, New*
Delhi

14- Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondicherry.*

Biotechnology and Bio-informatics:

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7. http://www.iitb.ac.in/~crnts.
8. http://www. zygogen.com.
9. http://www.dsir.nic.in/reports/tifp/database/metallo.pdf.
10. www.consort-statement.org
11. www.strobe-statement.org
12. www.icmr.nic.in

Clinical Evaluation:

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2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian Council of Medical Research- New Delhi.
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6. ICH Harmonised Tripartite Guidelines for Good Clinical Practices.(1997)- Quintles-Published by Brookwood Medical Publications. Richmond, Surrey. United Kingdom.
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Medical Statistics:

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2. Armitage P, Berry G, Matthews JNS: *Statistical Methods in Medical Research*. Fourth edition. Oxford, Blackwell Science Ltd; 2002
3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford University Press.
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15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA PRELIMINARY

1. AYURVED SAMHITA & SIDDHANTA
(Ayurvedic Compendia & Basic Principles)

PAPER-II

THEORY- 100 marks
Practical- Viva-Voce-100

50 marks

PART–A

1. Learning and Teaching methodology available in Samhita- Tantrayukti, Tantraguna, Tantradosha, Tachchilya, Vadamarga, Kalpana, Arthashraya, Trividha Gyanopaya, teaching of Pada, Paada, Shloka, Vakya, Vakyartha, meaning and scope of different Sthana and Chatushka of Brihatrayee.
2. Manuscriptology - Collection, conservation, cataloguing, Critical editing through collation, receion (A critical revision of a text incorporating the most plausible elements found in varying sources), emendation (changes for improvement) and textual criticism (critical analysis) of manuscripts. Publication of edited manuscripts.
3. Concept of Bija chatustaya (Purush, Vyadhi, Kriyakaal, Aushadha according to Sushrut Samhita).
4. Introduction and Application of Nyaya (Maxims) - Like Shilaputrak Nyaya, Kapinjaladhikaran Nyaya, Ghunakshara Nyaya, Gobalivarda Nyaya, Naprishtah Guravo Vadanti Nyaya, Shringagrahika Nyaya, Chhatrino Gacchhanti Nyaya, Shatapatrabhedana Nyaya, Suchikatah Nyaya.
5. Importance and utility of Samhita in present era.
6. Importance of ethics and principles of ideal living as mentioned in Samhita in the present era in relation to life style disorders.
7. Interpretation and co-relation of basic principles with contemporary sciences.

PART-B **50 marks**

1. Definition of Siddhanta, types and applied examples in Ayurveda.
2. Ayu and its components as described in Samhita.
3. Principles of Karana-Karyavada, its utility in advancement of research in Ayurveda.
4. Theory of Evolution of Universe (Srishti Utpatti), its process according to Ayurveda and Darshana.
5. Importance and utility of Triskandha (Hetu, Linga, Aushadh) and their need in teaching, research and clinical practice.
6. Applied aspects of various fundamental principles: Tridosha, Triguna, Purusha and Atmanirupana, Shatpadartha, Ahara-Vihara. Scope and importance of Pariksha (Pramana).
7. Importance of knowledge of Sharir Prakriti and Manas Prakriti.
8. Comparative study of Principles of Ayurveda and Shad Darshanas.

1. **REFERENCE BOOKS:-**

1	Charak Samhita	Chakrapani commentary
2	Sushrut Samhita	Dalhana Commentary
3	Ashtanga Samgraha	Indu commentary
4	Ashtanga Hridaya	Arundutta and Hemadri commentary
5	Vaisheshika Darshan	Prashastapada Bhasya
6	Nyaya Darshan	Vatsyayan Bhasya Patanjala
7	Yoga Darshan	Vyas Bhasya
8	Vedantsara	
9	Sarvadarshan Samgraha	
10	Bhartiya Darshan	Baldev Upadhayaya
11	Ayurved Darshanam	Acharya Rajkumar Jain

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Final M.D. Ayurveda

Subject 1. AYURVED SAMHITA & SIDDHANT

Theory- 400 Marks (100 Each)

Practical and Viva-Voce-100 Marks

PAPER-I **100 Marks**

CHARAKA SAMHITHA

1. Charaka Samhita with Ayurved Dipika commentary by Chakrapani
2. Introduction to all available commentaries on Charak Samhita

PAPER –II **100 Marks**

SUSHRUT SAMHITA & ASHTANG-HRIDAYAM

1. Sushruta Samhita Sutra sthana and Sharir-Sthana 1st chapter with Nibandha Samgraha commentary by Acharya Dalhana.
2. Ashtang-Hridayam Sutra Sthananam with Sarvanga Sundara commentary by Arun Dutt.
3. Introduction to all available commentaries on Sushrut Samhita, Ashtang hridaya

PAPER-III **100 Marks**

AYURVEDIYA AND DARSHANIKA SIDDHANTA

Understanding of Indian philosophical principles available in Charak Samhita, Sushrut Samhita, Ashtanga Hridya and Ashtang Samgraha.

1. Analysis of principles specially Chaturvidha Siddanta, loka-purusha samya, Ayusho Siddhant, Shadpadartha, Praman, Srishti Utpatti, Karana- Karyavada, Tantrayukti, Nyayas (Maxims), Vadamarga, Atmatatva & Manastatva Siddhant.
2. Clinical importance of Satkaryavad, Asatkaryavada, Parmanuvada, Swabhavoparamvada.
3. Practical applicability of principles of Samkhya- Yoga, Nyaya-Vaisheshika, Vedanta and Mimansa Darshan.

PAPER – IV **100 Marks**

AYURVED ITIHAS AND PRAYOGIKA SIDDHANT

1. Post independent Development of Ayurveda: Education, Research.
2. Globalisation of Ayurved.
3. Introduction of department of AYUSH, CCIM, CCRAS, RAV.
4. Tridosh Siddhant.
5. Panchabhautik Siddhant
6. Manastatva and its Chikitsa Siddhant.
7. Naishthiki Chikitsa.
8. Practical applicability principles of Charvak, Jain & Bauddha Darshana.
9. Journals, types of Journals review of Articles.

1. Comparative study of the Samprapti & Chikitsa Sootra mentioned by Brihattrayee of following disises – Jvara, Raktpitta, Gulma, Prameha, Kushta, Shosha, Unmada, Apasmar, Atisara, Grahni, Vatrakta, Aamvata,

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Shwasa-Kasa, Pandu-Kamla, Urustambha, Vatavyadhi, Shotha, Udararoga, Yakshma,

2. Critical analysis and applied study of the following concepts – Triguna, Tridosha,
   Panchamahabhuta, Prakrtisamsaveta & Vikrativishamsamveta, Sharira & Manas Prakruti, Sama-Nirama, Agni, Ojus, Vyadhikshamatva, Vikarvighatbhavabhava, Kalakalmrtyu, Ahara-Vihara, Pathyapathya, Satmyaasatmya, Nidanarthakarroga, Shadavidhakriyakal, Ashtatrika, Shadaupakrama, Daiva-drishta, Punrjanma, Anubandha Chatushtya, (comparative study of above concepts from Brihattrayee, Laghuttaryee with available Sanskrit commentaries)
3. Introduction to Laghuttaryee with available Sanskrit commentaries.

Practical- Viva-voce **100 Marks**

(50 case sheets are to be filled from samhita siddhant IPD / OPD

(At list one paper should be published/accepted in journal ,Long Case , topic presentation, Thesis Viva, General Viva, =100)

Reference Books

1. Charak Samhita – Chakrapani commentary.
2. Sushruta Samhita – Dalhana Commentary.
3. Ashtanga Samgraha- Indu Teeka.
4. Ashtanga Hridaya – Sarvangasundara.
5. Vaisheshika Sutra – Prashastapada Bhasya
6. Nyaya Sutra – Vatsyayan Bhasya
7. Ayurvede nyayah
8. Nyayas in Brihattriyee
9. Yoga Sutra – Vyas Bhasya
10. Vedantasara
11. Sarvadarshan Samgraha
12. Bhartiya Darshan – Baldev Upadhayaya

13. Ayurved Darshanam – Acharya Rajkumar Jain
14. Ayurved Darshan Vimarsha – Dr O P Upadhyay
15. Ayurvediy Jeevak Su – Dr O P Upadhyay
16. Padartha Vidnyan –Dr O P Upadhyay
17. Scientific Exploration of Ayurved – Dr Sudhir Kumar.
18. Charak Samhita – Prof. B L Gaur
19. Ashtang Hridaya – Dr T Shri Kumar

2.11 No: of hours per subject

Given under Clasue No. 2.10

2.12 Practical training

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.

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5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can

resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.

18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

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3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha *ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm*

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.

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18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD

3. EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

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Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

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f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

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3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

MODEL QUESTIONS

FINAL YEAR PG (Ayurveda) DEGREE EXAMINATION

Branch: AYURVED SAMHITA & SIDDHANT

Paper I: CHARAK SAMHITA

Time: 3 Hrs Total marks: 100

Answer all Questions

1. Enumerate gunas according to Charaka. Discuss their importance in health, disease and treatment. **(20 marks)**

2. Explain sareeravridhikarabhavas, balavridhikarabhavas and Aharaparinamakarabhava.

3. Criticize panchasan mahakashayas and its practical utility.

4. Define yuktipramana and explain its utility in research.

5. Discuss the etiology and preventive measures of janapadodhwamsa vyadhis

6. Write the premonitory symptoms of jwara and line of treatment. Explain the importance of ghrita in jwara.

7. Explain the importance of jataragni and its derangement in the manifestation of grahaniroga.

8. Write a description about the commentary Ayurveda Deepika and its author.

9. Describe the factors to be examined to determine residual span of life.

(8x10 marks)

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MODEL QUESTIONS

FINAL YEAR PG (Ayurveda) DEGREE EXAMINATION

Branch: AYURVED SAMHITA & SIDDHANT

Paper II: SUSHRUT SAMHITA & ASHTANG-HRIDAYAM

Time: 3 Hrs Total marks: 100

Answer all Questions

1. Analyze the samanya upakrama of Tridoshas based on their gunas and basic constitution. **(20 marks)**

2. Explain Jagat karanavada according to Susruta Samhita.

3. Describe Bija chatushtaya.

4. Criticize the treatment principle in Asthi kshaya.

5. Discuss Vichitra pratyayarabdha and Prabhava.

6. Criticize the concept of Ojus and Vyadhikshamatwa.

7. Write the classification of diseases according to Susruta Samhita.

8. Describe Srishtyutpatti krama according to Susruta Samhita.

9. Describe the commentary NibandhaSamgraha and its author. **(8x10 marks)**

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MODEL QUESTIONS

FINAL YEAR PG (Ayurveda) DEGREE EXAMINATION

Branch: AYURVED SAMHITA & SIDDHANT

Paper III: AYURVEDIYA AND DARSANIKA SIDDHANTA

Time: 3 Hrs Total marks: 100

Answer all Questions

1. Discuss and compare the concept of miseries (Dukha) in Samkhya darsana and Ayurveda. **(20 marks)**

2. Discuss Atma according to Ayurveda and Darsanas.

3.Which are padarthas of Vaiseshika darsana? Discuss how they are utilized in Ayurveda.

4. Describe Lokapurusha samyavada and the benefits of its knowledge.

5. Describe the important principles of Yogadarsana.

6. Criticize Avasthapaka and Nishtapaka with Pilupaka and Pitarapaka.

7. Write the pramanas accepted in Shad darsanss and Ayurveda.

8. Enumerate Tantrayuktis and their utility in understanding Ayurveda Samhitas.

9. Explain shodasa padarthas of Nyaya darsana.

(8x10 marks)

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MODEL QUESTIONS

FINAL YEAR PG (Ayurveda) DEGREE EXAMINATION

Branch: AYURVED SAMHITA & SIDDHANT

Paper IV: AYURVED ITIHAS AND PRAYOGIKA SIDDHANT

Time: 3 Hrs Total marks: 100

Answer all Questions

1. Criticize the application of Panchamahabhuta Siddhanta and Tridosha Siddhanta in the treatment principles of Ayurveda. **(20 marks)**

2. Describe manas in Ayurveda and its role in jnanotpatti,

3. Describe the important principles of Charvaka darsana.

4. Discuss post-independent development of Ayurveda in the field of education and research.

5. Criticize the factors which have helped in the globalization of Ayurveda.

6. Explain the influence of Baudha darsana in Ayurveda.

7. Describe the development of Ayurveda through CCIM and AYUSH.

8. Discuss the principles of Jaina darsana and illustrate Syat vada.

9. Discuss Tridosha siddhanta in the light of contemporary science.

(8x10 marks)

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3.7 Internal assessment component

Not applicable

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3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if

any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

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(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

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Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.

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2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.

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2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

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Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Kriya Sharira
(M.D. (Ayurveda) – Physiology)

(2016-17 Academic year onwards)

Course Code 251

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Vachaspati – Kriya Sharira (M.D. (Ayurveda) – Physiology)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Subjects

Given under curriculum clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(***The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)***

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hour

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee

(AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.
   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati
   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti
6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda
   Fundamental research on concepts of
   Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-
   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

   concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
   Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

   Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.
    Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development
-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies
Longitudinal & Cross sectional
studies Prospective &
Retrospectives studies Cohort
studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling

methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad



PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API, including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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1. Aushotosh Kar "Pharmacognosy & Pharmacobiotechnology" New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
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13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

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Pharmaceutical chemistry, quality control and drug standardization:

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   Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
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   edition
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11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO-
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14- Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondicherry.*

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Clinical Evaluation:

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M.D.-AYURVEDA PRELIMINARY

3.KRIYA SHARIR

(Physiology)

PAPER II **Theory 100 Marks**

PART A **50 Marks**

1. Theory of Loka-Purusha Samya
2. Theory of Panchamahabhuta
3. Physiological aspects of Samanya – Vishesha siddhanta
4. Concepts of Tridosha and Triguna
5. Concept of Dhatu
6. Concept of Mala
7. Description of Ojas
8. Process of Ahara Parinama including Aharaparinamakara Bhava and Asta Ahara Vidhi Visesayatana
9. Physiological importance of Agni, its classification and functions
10. Dhatuposana theories
11. Concepts of Atma, Manas and Indriya.
12. Concepts of Prakriti and Ashtavidha Sara.
13. Concept of Srotas

PART B **50 Marks**

Description of essential and relevant understandings related to contemporary physiology, both general physiology and systemic physiology.

1. Essentials of cell physiology – organization of cell.
2. Membrane physiology- transport across cell membrane, action potentials and resting membrane potentials.
3. Homeostasis- negative and positive feedback mechanisms.
4. Genetic code, its expression and regulation of gene expression.
5. Essentials of cardiovascular physiology- cardiac cycle, regulation of heart rate and blood pressure.
6. Essentials of respiratory physiology- regulation of respiration-chemical and neural, gaseous exchange, transportation of gases.
7. Gastrointestinal physiology- various digestive juices and their actions, gastrointestinal hormones, enteric nervous system.
8. Nervous system physiology- ANS, somatic nervous system, reflexes, general and special sensations, higher mental functions, functions of brain, brainstem and spinal cord.
9. Blood: Blood cells-RBCs, WBCs, platelets, plasma proteins and immunity.
10. Muscle physiology: properties and mechanisms of contraction of skeletal, cardiac and smooth muscles.

11. Physiology of excretion- mechanism of urine formation, micturition.
12. Endocrine physiology: Classification of hormones, hormones secreted by pituitary, thyroid, parathyroid, adrenal glands, pineal, pancreas and their functions.
13. Study of male and female reproductive system: functions of reproductive hormones.

PRACTICAL **100 Marks**

Contents:
Ayurvedic practicals
Assessment of Prakriti
Assessment of Sara Pramana Pariksha
Hematology Hemoglobin
estimation Total RBC count
Total WBC count Differential
leukocyte count Packed cell volume
(PCV) ESR
Bleeding time
Clotting time
Blood grouping and Rh typing
Urine examination -
Physical examination- Specific gravity and reaction of urine
Chemical examination
Albumin test
Sugar test
Ketone bodies
Bile salts and pigments

Distribution of marks (Practical)

1. Laboratory Practical - 20
2. Human Experiment - 15
3. Spotting - 15
4. Prakriti Saradi pariksha - 20
5. Practical Record - 10
6. Viva-voce - 20

REFERENCE BOOKS:

1. Ayurvediya Kriyasharir - Ranjit Rai Desai
2. Kayachikitsa Parichaya - C. Dwarkanath
3. Prakrit Agni Vigyan - C. Dwarkanath
4. Sharir Kriya Vigyan - Shiv Charan Dhyani
5. Abhinava Sharir Kriya Vigyana - Acharya Priyavrata Sharma

6. Dosha Dhatu Mala Vigyana - Shankar Gangadhar Vaidya
7. Prakrita Dosha Vigyana - Acharya Niranjana Dev
8. Tridosha Vigyana - Shri Upendranath Das
9. Sharira Tatva Darshana - Hirlekar Shastri
10. Prakrita Agni Vigyana - Niranjana Dev
11. Deha Dhatvagni Vigyana - Vd. Pt. Haridatt Shastri
12. Sharir Kriya Vigyana (Part 1-2)- Acharya Purnchandra Jain
13. Sharir Kriya Vigyana - Shri Moreshwar Dutta Vd.
14. Sharira Kriya Vijnana (Part 1-2) - Nandini Dhargalkar
15. Dosha Dhatu Mala Vigyana - Basant Kumar Shrimal
16. Pragyogik Kriya Sharir - Acharya P.C. Jain
17. Kaya Chikitsa Parichaya - Dr. C. Dwarkanath
18. Concept of Agni - Vd. Bhagwan Das
19. Purush Vichaya - Acharya V.J. Thakar
20. Kriya Sharir - Prof. Yogesh Chandra Mishra
21. Sharir Kriya Vigyana- Prof. Jayaram Yadav & Dr. Sunil Verma
22. Basic Principles of Kriya-Sharir (A treatise on Ayurvedic Physiology) by -Dr. Srikant Kumar Panda
23. Sharir Kriya – Part I & II-Dr. Ranade, Dr. Deshpande & Dr. Chobhe
24. Human Physiology in Ayurveda -Dr Kishor Patwardhan
25. Sharirkriya Vignyan Practical Hand Book -Dr.Ranade, Dr.Chobhe, Dr. Deshpande
26. Sharir Kriya Part 1&2 -Dr.R.R.Deshapande, Dr.Wavhal
27. Textbook of Physiology -Gyton & Hall
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31. Fundamental of Anatomy & Physiology -Martini
32. Principals of Anatomy & Physiology -Tortora & Grabowski
33. Human Physiology -Richards, Pocock
34. Samson Wrights Applied Physiology, Keele, Neil, joels
35. Brainstem Control of Wakefulness And Sleep - Steriade, Mirce
36. An Introduction to Human Physiology - Green, J.h.
37. Ancient Indian Medicine - Kutumbiah P.
38. Biographical History of Indian Medicine - Srikanthamurthy KR
39. Ayurveda Kriya Sharira - Yogesh Chandra Mishra
40. Textbook of Medical Physiology - Indu Khurana
41. Tridosha Theory - Subrahmanya Shastri
42. Statistics in Medicine - K. Syamalan
43. Abhinava Sharir Kriya Vigyana - Dr. Shiv Kumar Gaur

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Final M.D. Ayurveda

3. KRIYA SHARIR

Theory – 400 Marks (100 Each)
Practical and Viva-Voce-100 Marks

Paper- I **100 Marks**

DOSA – DHATU – MALA VIJNANA

Contribution of different Ayurveda Samhita in Kriya Sharir

- Theory of Pancamahabhuta
- Principle of Loka-Purusa Samya
- Importance of Samanya – Visesa Principle
- Different views on the composition of Purusa and the importance of Cikitsya Purusa.
- Importance of Gurvadi Guna in Ayurveda
- General description of Tridosa theory
- Mutual relationship between Triguna- Tridosa-Pancamahabhuta-indriya
- Mutual relationship between Rtu-Dosa-Rasa-Guna
- Biological rhythms of Tridosa on the basis of Day-Night-Age-Season and Food intake.
- Role of Dosa in the formation of Prakrti of an individual.
- Role of Dosa in Health and Disease.
- **Vata Dosa:** General locations (Sthana), general attributes (guna) and general functions (Samanya Karma). Five subdivisions of Vata with their specific locations, specific properties, and specific functions (Prana, Udana, Samana, Vyana, Apana)
- **Pitta Dosa:** General locations (Sthana), general attributes (Guna) and general functions (Samanya Karma). Five subdivisions of Pitta with their specific locations, specific properties, and specific functions (Pacaka, Ranjaka, Alocaka, Bhrajaka, Sadhaka). Similarities and differences between Agni and Pitta.
- **Kapha Dosa:** General locations (Sthana), general attributes (Guna) and general functions (Karma) of Kapha.). Five subdivisions of Kapha with their specific locations, specific properties and specific functions (Bodhaka, Avalambaka, Kledaka, Tarpaka, Slesaka).
- Applied physiology of Tridosa Principle: Kriyakala, Dosa Vrddhi-Dosa Ksaya.
- **Dhatu Posana:** Process of nourishment of Dhatu. Description of various theories of Dhatu Posana (Ksira-Dadhi, Kedari-Kulya, Khale Kapota etc).
- **Dhatu:** General introduction and definition of Dhatu. Formation, Definition (Nirukti), Distribution , Attributes, quantity, classification, Pancabhautika composition and Functions of all seven Dhatus in detail: Rasa, Rakta, Mamsa, Meda, Asthi, Majja, Sukra.

- Applied physiology of Dhatu: Manifestations of Ksaya and Vriddhi of each Dhatu. Description of Dhatu Pradosaja Vikara.
- Description of Asraya and Asrayi kind of relationship between Dosa and Dhatu.
- Description of the characteristic features of Astavidha Sara. Description of Rasavaha, Raktavaha, Mamsavaha, Medovaha, Asthivaha, Majjavaha and Sukravaha Srotamsi.
- **Ojas:** Definition, locations, synonyms, Formation, Distribution, Properties, Quantity, Classification anf Functions of Ojas. Description of Vyadhiksamitva. Bala Vrddhikara Bhava. Classification of Bala. Relation between Slesma, Bala and Ojas.
- Applied physiology of Ojas: Etiological factors and manifestations of Ojaksaya, Visramsa and Vyapat. Physiological and clinical significance of Ojas.
- **Upadhatu:** General introduction and Definition of the the term 'Upadhatu'. Formation, Nourishment, Quantity, Properties, Distribution and functions of each Upadhatu.
- **Stanya:** Characteristic features and methods of assessing Suddha and Dusita Stanya, Manifestations of Vrddhi and Ksaya of Stanya.
- **Artava:** Characteristic features of Suddha and Dusita Artava. Differences between Raja and Artava, Physiology of Artavavaha Srotamsi.
- Study of Tvak
- **Physiology of Mala –** Definition of the term 'Mala'. Definition, Formation, Properties, Quantity and Functions of Purisa, Mutra. Manifestations of Vrddhi and Kshaya of Purisa and Mutra.
- **Sveda –** Definition, Formation, Properties, Quantity and Functions of svedavaha Srotamsi. Formation of Sveda. Manifestations of Vrddhi and Ksaya of Sveda.
- **Dhatumala –** Definition, Formation, Properties, Quantity, Classification and Functions of each Dhatumala.

Paper – II **100 Marks**

PRAKRTI - SATTVA VIJNANA

- **Deha-Prakrti:** Various definitions and synonyms of the term 'Prakrti'. Factors influencing the Prakrti. Classification of Deha-Prakrti. Characteristic features of the individuals belonging to each kind of Deha-Prakrti. Recent advances in understanding the Prakrti.
- **Manas Prakrti:** Types of Manas Prakrti with their characteristic features and its Practical implication, Properties of Satwa, Rajas,

Tamas and their effect on mind.

- **Pancajnanendriya:** Physiological description of Pancajnanendriya and Physiology of perception of Sabda, Sparsa, Rupa, Rasa, Gandha. Indriya-panca-pancaka; Physiological description of Karmendriya.
- **Manas –** Definition, location (sthana), Properties, Functions and Objects of Manas.
- **Atma -** Definition, Properties of Atma. Difference between Paramatma and Jivatma; Characteristic features of Atma.
- **Buddhi –** Location, types, Functions of buddhi; Physiology of Dhl, Dhrti and Smrti.
- **Nidra –** Definition of Nidra, Classification of Nidra. Tandra, physiological and clinical significance of Nidra; Svapnotpatti and Svapnabheda.
- Physiology of special senses
- Physiology of Intelligence, Memory, Learning and Motivation.
- Physiology of sleep.
- Physiology of speech and articulation.
- Physiology of Pain and temperature.

Paper- III **100 Marks**

KOSTHANGA KRIYA VIJNANA

- Ahara: Definition and significance of Ahara. Classification of Ahara. Ahara- Vidhi-vidhana. Asta aharavidhi visesayatana, Aharaparinamakara bhava.
- Aharpachana: Ahara Paka Prakriya, Description of Annavaha Srotas. Description of Avasthapaka and Nishthapaka. Role of dosha in Aharapaka. Sara and Kitta Vibhajana. Absorption of Sara. Utpatti and Udeeran of Vata-Pitta-Kapha.
- Definition of the term Kostha. Physiological classification of Kostha and the characteristics of each kind of kostha.
- Agni: Descripton of the importance of Agni. Classification of Agni. Locations, Properties and functions of Jātharāgni, Bhūtāgni, and Dhātvagni.
- Applied Physiology of Agni in Kriyā Śārīra and Cikitsā.
- Descripton of the aetiology and features of annavaha Srotodusti. Applied physiology of Annavaha Srotās: Arocaka, Ajīrna, Atīsāra, Grahanī, Chardi, Parināma Śūla Agnimāndya.
- Descripton of the process of digestion of fats, carbohydrates and proteins in human gastrointestinal tract. Different digestive juices, their enzymes and their mechanisms of action. Functions of Salivary glands, Stomach, Pancreas, Small intestine, Liver and large intestine in the process of digestion and absorption.

- Movements of the gut (deglutition, peristslsis, defecation etc.) and their control.

Role of neuro-endocrine mechanisms in the process of digestion and absorption. Enteric nervous systems.

- Applied Physiology of gastrointestinal tract: Vomiting, Diarrhoea, Malabsorption etc.
- Recent advances related to the gut microbes and their role in health and disease.
- Introduction to biochemical structure, properties and classification of proteins, fats and carbohydrates.
- Description of the processes involved in the metabolism of proteins, fats and carbohydrates.
- Vitamins: Sources, daily requirement and functions. Physiological basis of signs and symptoms of hypo and hyper- vitaminosis.

Paper – IV **100 Marks**

MODERN PHYSIOLOGY AND ITS APPLIED ASPECT

General Physiology:

- Definition and mechanisms of maintainance of Homeostasis. Cell as the living unit of the body. Membrane Physiology. Transportation of various substances across cell membrane. Resting membrane potentials and action potentials. The internal environment. Genetic code, its expression and regulation of gene expression.

Physiology of Neuro-Immune-Endocrine Mechanisms:

- Physiology of Nervous System. General introduction to nervous system: neurons, mechanism of propagation of nerve impulse.
- Study of CNS, PNS and ANS. Sensory and motor functions of nervous system. Functions of different parts of brain and spinal cord, Hypothalmus and limbic system
- Physiology of Endocrine system. Classification and characteristics of different hormones. Description of hormones secreted by Hypothalamus, Pituitary gland, Thyroid gland, Parathyroid glands, Pancreas, Adrenal glands and their physiological effects. Effects of hypo and hyper-secretion of various hormones.
- Male and Female reproductive physiology. Spermatogenesis and Oogenesis. Hormonal regulation of uterine and ovarian cycles. Physiology of Pregnancy, lactation and Parturition.

- Adipose tissue and its Function. Circulating lipids. Description of lipoproteins like VLDL, LDL and HDL and their composition.
- Physiology of immune system. Definition and classification of immunity: Innate, acquired and artificial. Mechanisms involved in humoral and cell mediated immunity.

Cardiovascular physiology, Respiratory physiology and Blood:

- Physiology of Cardio-vascular system: Functional anatomy of cardiovascular system. Cardiac cycle. Heart sounds. Regulation of cardiac output and venous return. Physiological basis of ECG. Heart-rate and its regulation. Arterial pulse. Systemic arterial blood pressure and its control. Regional circulations. Physiology of lymphatic circulation.
- Physiology of Respiratory system: Functional anatomy of respiratory system. Ventilation. Mechanism of respiration. Exchange and transportation of gases. Neural and chemical control of respiration. Spirometry and lung function tests. Artificial respiration.
- Functions of Haemopoetic system: Composition and functions of blood and blood cells. Haemopoiesis- (Stages and development of RBCs, WBCs and Platelets); Introduction to bone marrow: composition and functions of bone marrow. Structure and functions of haemoglobin, mechanism of blood clotting, study of platelets. Physiological basis of blood groups. Principles of blood transfusion, plasma proteins- synthesis and functions. Applied physiology: Anaemia, Jaundice.

Musculoskeletal Physiology:

Physiology of muscles. Classification of muscles. Electrical and mechanical properties of Cardiac, skeletal and smooth muscles.

Physiology of Excretion:

- Physiology of excretion. Functional anatomy of urinary tract. Functions of kidneys. Mechanism of formation of urine. Control of micturition. Renal function tests.
- Structure and functions of skin, sweat glands and sebaceous glands.

Physiology during special states:

- Space Physiology
- Exercise Physiology
- Physiology of high altitude and deep sea

- Physiology of Yoga
- Physiological response to environmental changes
- Physiological response to Vega Vidharana (Holding Natural urges)

Learners should be well versed with the following instruments-

- Physiograph, Computerised spirometry, Biochemical Analyzer, Pulse oxymeter, ELISA Reader, Hematology Analyzer, Tread mill etc.

Bridge areas including recent advances:

- Recent studies in biorhythms.
- Recent advances in Neuro- immune-Endocrine physiology.
- Recent advances in understanding the Prakrti. Brief description related to some of the recent studies exploring the genetic / biochemical / haematological / electrophysiological basis for prakrti. Introduction to the recent tools to assess prakrti (questionnaires and software.)
- Recent advances in tissue engineering and stem cell research.

PRACTICAL **100 Marks**

Ayurvedic practicals

- Assessment of Prakrti
- Assessment of Sara
- Assessment of Dosa Vrddhi Ksaya Laksana
- Assessment of Dhatu Vrddhi – Ksaya Laksana
- Assessment of Agni
- Assessment of Kostha
- Assessment of Sarira Bala through Vyayama Sakti
- Mutra Pariksa
- Nadi Pariksa
- Anguli Pramana
- Assessment of Satmya

Hematology

- Use and care of Compound microscope
- Histological study of different organs
- Haemoglobin estimation
- Total RBC count
- Total WBC count
- Differential leukocyte count
- Packed cell volume (PCV)
- ESR
- Bleeding time
- Clotting time
- Blood grouping and Rh typing

URINE EXAMINATION

Physical, Chemical and microscopic examination

- Specific gravity and reaction of urine
- Detecting the presence of Albumin in urine
- Detecting the presence of Sugar in urine
- Detecting the presence of Ketone bodies in urine
- Detecting the presence of Bile salts and bile pigments in urine
- Detecting the presence of pus cell, casts etc. in urine.

Cardio-Vascular system

- Clinical methods of examining cardiovascular system
- Examination of Arterial Pulse
- Arterial blood pressure measurement: Effect of posture, exercise and cold pressor test on Blood Pressure
- ECG recording and its interpretation
- Heart Sounds

Respiratory system

- Clinical examination of Respiratory System
- Lung Function Tests including Spirometry

Nervous System

- Clinical examination of nervous system
- Examination of higher mental functions
- Examination of cranial nerves
- Examination of reflexes
- Examination of sensory functions
- Examination of motor functions
- Examination of Autonomic Nervous system
- EEG recording (Demonstration)

Requirements to be fulfilled before final examination

- Atleast 10 theory classes for First Prof. BAMS Students
- Participation and presentation of papers in atleast 2 National / International Seminars.
- Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

Practical **100 Marks**

Marks Distribution

• Practical Record Book	-	05
• Ayurvedic Practical	-	10
• Modern Practical	-	10
• Assesment of Teaching skill	-	10
• Project Work	-	10
• Presentation of Thesis	-	15
• Viva Voce	-	40
Total Marks	**-**	**100**

Reference Books

- Ayurvediya Kriyasharir - Ranjit rai Desai
- Kayachikitsa Parichaya - C. Dwarikanath
- Prakrit Agni Vigyan - C. Dwarikanath
- Sharir Kriya Vigyan - Shiv Charan Dhyani
- Abhinava Sharir Kriya Vigyana - Acharya Priyavrata Sharma
- Dosha Dhatu Mala Vigyana - Shankar Gangadhar Vaidya
- Prakrita Dosha Vigyana - Acharya Niranjana Dev
- Tridosha Vigyana - Shri Upendranath Das
- Sharira Tatva Darshana - Hirlekar Shastri
- Prakrita Agni Vigyana - Niranjana Dev

- Deha Dhatvagni Vigyana - Vd. Pt. Haridatt Shastri
- Sharir Kriya Vigyana (Part 1 – 2) - Acharya Purnachandra Jain
- Sharir Kriya Vigyana - Shri Moreshwar Dutt. Vd.
- Sharir Kriya Vijnana (Part 1 and 2) - Nandini Dhargalkar
- Dosha Dhatu Mala Vigyana - Basant Kumar Shrimal
- Abhinava Sharir Kriya Vigyana - Dr. Shiv Kumar Gaur
- Pragyogik Kriya Sharir - Acharya P. C. Jain
- Kaya Chikitsa Parichaya - Dr. C. Dwarkanath
- Concept of Agni - Vd. Bhagwan Das
- Purush Vichaya - Acharya V. J. Thakar
- Kriya Sharir - Prof. Yogesh Chandra Mishra
- Sharir Kriya Vigyana - Prof. Jayaram Yadav & Dr. Sunil Verma
- Basic Principles of Kriya- Sharir - (A treatise on Ayurvedic Physiology)- Dr. Srikant Kumar Panda
- Sharir Kriya – Part I & Part II - Dr. Ranade, Dr. Deshpande & Dr. Chobhe
- Human Physiology in Ayurveda - Dr Kishor Patwardhan
- Sharirkriya Vignyan Practical Hand Book -Dr.Ranade, Dr.Chobhe, Dr. Deshpande
- Sharir Kriya Part 1 - Dr.R.R.Deshpande, Dr.Wavhal
- Sharir Kriya Part 2 - Dr.R.R.Deshpande, Dr.Wavhal
- Textbook of Physiology - Gyton & Hall
- Review of Medical Physiology - William Ganong
- Essentials of Medical Physiology - Sembulingam K.
- Concise Medical Physiology - Chaudhari, Sujit.K.
- Fundamental of Anatomy and Physiology - Martini
- Principals of Anatomy and Physiology - Tortora & Grabowski
- Human Physiology - Richards, Pocock
- Samson Wrights Applied Physiology, Keele, Neil, joels
- Brainstem Control of Wakefulness And Sleep - Steriade, Mirce
- An introduction to Human Physiology - Green, J.h.
- Ancient Indian Medicine - Kutumbiah P.
- Biographical History of Indian Medicine - Srikanthamurthy K R
- Ayurveda Kriya Sharira - Yogesh Chandra Mishra
- Textbook of Medical Physiology - Indu Khurana
- Tridosha Theory - Subrahmanya Shastri
- Statistics in Medicine - K. Syamalan
- Prayogika Sharir Kriya -Prof. M.S.Meena & Dr. Mahendra Prasad

Important journals to refer:

1. Advances in Physiology Education

2. Academic Medicine
3. Indian journal of Physiology and Pharmacology
4. Journal of Ayurveda and Integrative Medicine
5. Evidence-based Complementary and Alternative Medicine
6. AYU
7. All journals of American Physiological Society
8. Journal of Physiology

Recent Research Papers in Kriya Sharir / Physiology to refer

1. Advances in Physiology Education
2. Academic Medicine
3. Indian journal of Physiology and Pharmacology
4. Journal of Ayurveda and Integrative Medicine
5. Evidence-based Complementary and Alternative Medicine
6. AYU
7. All journals of American Physiological Society
8. Journal of Physiology

Important research papers to refer:

9. Hong KW, Oh B. Overview of personalized medicine in the disease genomic era. BMB Rep. 2010 Oct;43(10):643-8.
10. Prasher B, Negi S, Aggarwal S, Mandal AK, Sethi TP, Deshmukh SR, Purohit SG, Sengupta S, Khanna S, Mohammad F, Garg G, Brahmachari SK; Indian Genome Variation Consortium, Mukerji M. Whole genome expression and biochemical correlates of extreme constitutional types defined in Ayurveda. J Transl Med. 2008 Sep 9;6:48.
11. Patwardhan B, Bodeker G. Ayurvedic genomics: establishing a genetic basis for mind-body typologies. J Altern Complement Med. 2008 Jun;14(5):571-6. Review. PubMed PMID: 18564959.

1. Bhushan P, Kalpana J, Arvind C. Classification of human population based on HLA gene polymorphism and the concept of Prakriti in Ayurveda. J Altern Complement Med. 2005 Apr;11(2):349-53.
2. Ghodke Y, Joshi K, Patwardhan B. Traditional Medicine to Modern Pharmacogenomics: Ayurveda Prakriti Type and CYP2C19 Gene Polymorphism Associated with the Metabolic Variability. Evid Based Complement Alternat Med. 2009 Dec 16. [Epub ahead of print]
3. Aggarwal S, Negi S, Jha P, Singh PK, Stobdan T, Pasha MA, Ghosh S, Agrawal A; Indian Genome Variation Consortium, Prasher B, Mukerji M. EGLN1 involvement in high-altitude adaptation revealed through genetic analysis of extreme constitution types defined in Ayurveda. Proc Natl Acad Sci U S A. 2010 Nov 2;107(44):18961-6. Epub 2010 Oct 18.
4. Tav Pritesh Sethi, Bhavana Prasher and Mitali Mukerji. Ayurgenomics: A New Way of Threading Molecular Variability for Stratified Medicine. ACS Chemical Biology.2011(6):875-880

5. Marchetti B, Morale MC, Gallo F, Batticane N, Farinella Z, Cioni M. Neuroendocrineimmunology (NEI) at the turn of the century: towards a molecular understanding of basic mechanisms and implications for reproductive physiopathology. Endocrine. 1995 Dec;3(12):845-61.
6. Licinio J, Frost P. The neuroimmune-endocrine axis: pathophysiological implications for the central nervous system cytokines and hypothalamus-pituitary-adrenal hormone dynamics. Braz J Med Biol Res. 2000 Oct;33(10):1141-8.
7. Turrin NP, Rivest S. Unraveling the molecular details involved in the intimate link between the immune and neuroendocrine systems. Exp Biol Med (Maywood). 2004 Nov;229(10):996-1006
8. Sewlall S, Pillay V, Danckwerts MP, Choonara YE, Ndesendo VM, du Toit LC. A timely review of state-of-the-art chronopharmaceuticals synchronized with biological rhythms. Curr Drug Deliv. 2010 Dec;7(5):370-88.
9. Ohdo S. Chronopharmaceutics: pharmaceutics focused on biological rhythm. Biol Pharm Bull. 2010 Feb;33(2):159-67
10. Humes HD. Stem cells: the next therapeutic frontier. Trans Am Clin Climatol Assoc. 2005;116:167-83; discussion 183-4.
11. Bianco P, Robey PG. Stem cells in tissue engineering. Nature. 2001 Nov 1;414(6859):118-21
12. Bhattacharya J. The Knowledge of Anatomy and Health in Ayurveda and Modern Medicine: Colonial Confrontation and Its Outcome
13. Wujastyk D. Interpreting the image of the human body in premodern India. Int J Hindu Studies 13: 189–228, 2009.
14. Kristina Harris, Amira Kassis, Geneviève Major, Chieh J. Chou. Is the Gut Microbiota a New Factor Contributing to Obesity and Its Metabolic Disorders? J Obes. 2012; 2012: 87915

2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

Given under Clasue No. 2.10

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.

2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can

resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.

18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clause No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha
   ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.

7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3. EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

PG Ayurveda Preliminary Model Question

(2012 scheme)

(**Kriya sareera**)

Paper II –Moulika Sidhantha

Time : 3 hrs **Max marks : 100**

Answer all questions

Essay(20 marks)

1. Explain the sub classifications of vata dosha in relation to neuro-physiological functions

Short essays **(8x10=80)**

2. Analyze the concept of agni & dhatvagni and its role in the formation of asthi dhatu
3. Describe the regulation of heart rate with centers, efferent, afferent nerves, vagal tone and vagal escape
4. Discuss the jeevana function of rakta dhatu in relation to respiratory physiology
5. Describe the source and functions of testosterone with its hormonal control. Your view of anabolic functions of testosterone and kabha dosha
6. Explain the triguna concept and list out the pitta prakriti mental traits.
7. Explain dhatumala concept and differentiate mala & dhatu mala
8. Enumerate the atma lingas and explain the atma lingas with behavioral & motivational mechanism of brain
9. Define and classify stimulus. Explain the types of muscle contra

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M.D. (AYURVEDA) FINAL YEAR MODEL QUESTION PAPER

KRIYASAREERA

Paper I – DOSHA DHATU MALA VIJNANA

1. Explain the concept of *saarapurusha* and analyze their characteristics under physical, physiological and psychological attributes. (20 marks)
2. Discuss the mutual relationship and interactions between *ritu, dosha, rasa* and *guna*. (10 marks)
3. Explain the rationale behind the description of general and specific locations for each *dosha*. (10 marks)
4. Analyze the mechanism of *dhatuposhana* as per the descriptions in *samhitas*, commentaries and modern books. (10 marks)
5. Explain the mechanism of *vriddhi* and *kshaya* of *rakta*, *mamsa* and *asthi* using the *asraya-asrayi* relationship. (10 marks)
6. Discuss the different dimensions of *ojus* and its relationship with *bala* and *sleshma*. (10 marks)
7. Explain the physiology of *arthava-vaha srotas*. (10 marks)
8. Explain the concepts of *upadhatu* and *dhatumala*. Critically analyze their relation with the concerned *dhatus*. (10 marks)
9. Discuss the similarities and differences between *agni* and *pitta*. (10 marks)

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M.D. (AYURVEDA) FINAL YEAR MODEL QUESTION PAPER

KRIYASAREERA

Paper II – PRAKRITI SATVA VIJNANA

1. Explain the uniqueness of description of *prakriti* in *Charaka samhita* with an example of *vataprakriti*. (20 marks)
2. Explain the physiological and clinical significance of sleep. (10 marks)
3. Explain the pathway for auditory sensation and compare with the Ayurvedic concept of *jnanotpatti*. (10 marks)
4. Explain the physiology of pain sensation. Compare the mechanism of action of analgesic drugs and topical analgesics. (10 marks)
5. Explain the uniqueness of concept of *manas* in Ayurveda. Critically analyze the role of *manas* in *jnanotpatti*. (10 marks)
6. Elaborate the concept of higher mental functions and compare with the Ayurvedic concepts of *dhee*, *dhriti* and *smriti*. (10 marks)
7. Explain the functions and connections of basal ganglia. (10 marks)
8. Differentiate between *jeevatma* and *paramatma*. Make a comparison between the properties of *atma* and *manas*. (10 marks)
9. Explain the mechanism of speech and its regulation. (10 marks)

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M.D. (AYURVEDA) FINAL YEAR MODEL QUESTION PAPER

KRIYASAREERA

Paper III – KOSHTANGA KRIYA VIJNANA

1. Explain the concept of *Agni*. Elaborate the different types of *Agni* and compare them with relevant biological, physiological and biochemical concepts. (20 marks)
2. Explain how the movements of GIT are regulated. Trace out the role of different subdivisions of *vata* in these mechanisms. (10 marks)
3. Describe the recent advances regarding the role of gut microbes in health and disease. Discuss relevant Ayurvedic concepts in this regard. (10 marks)
4. Why do we need to determine the type of *koshta* in a patient? How does it change the treatment protocol in a disease? (10 marks)
5. Enlist the *aharaparinamakara bhavas*. Critically analyze each of them using the concepts from digestive physiology. (10 marks)
6. Explain how *aharapaaka* and *doshas* are related. Differentiate between the pharmacokinetics and pharmacodynamics of *paaka* in an Ayurvedic perspective. (10 marks)
7. Explain the applied physiology behind the conditions of *chardi* and *atisara*. (10 marks)
8. Explain the rationale behind the administration of *peyadikrama* after a *sodhana* procedure based upon the gastrointestinal physiology. (10 marks)
9. How do the vitamins differ from the other components of food? Explain the physiological importance of vitamins A and D. (10 marks)

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M.D. (AYURVEDA) FINAL YEAR MODEL QUESTION PAPER

KRIYASAREERA

Paper IV – MODERN PHYSIOLOGY AND ITS APPLIED ASPECTS

1. Explain the female reproductive cycle along with its hormonal regulation. (20 marks)
2. Explain the functions, regulation and mechanism of secretion of insulin. (10 marks)
3. Describe the neural centers that influence the process of feeding. Discuss the long term and short term regulation of food intake. (10 marks)
4. Explain the autonomic effects on various organs of the body. Explain the types and functions of adrenergic and cholinergic receptors. (10 marks)
5. Explain the mechanism of pulmonary ventilation. Discuss the patho-physiology of emphysema and asthma. (10 marks)
6. Describe the mechanism of hemostasis. Explain the role of investigations in bleeding disorders. (10 marks)
7. Define GFR and filtrate fraction. Explain the mechanism of glomerular filtration and various pressures which determine GFR. (10 marks)
8. Explain circulatory shock and physiology of its treatment. (10 marks)
9. Explain the functions of specific cortical areas. (10 marks)

3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10

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3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

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5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

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(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

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(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

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Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.

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5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

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Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

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REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Dravyaguna Vigyana

(M.D. (Ayurveda) - Materia Medica and Pharmacology)

Course Code 252

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course:

Ayurveda Vachaspati – Dravyaguna Vigyana

(M.D. (Ayurveda) - Materia Medica and Pharmacology)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 SYLLABUS

Given under clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under clause no.2.10

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2.8 Branches if any with definition

Given under clause no.2.10

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hours

PART-A 60 Marks **Teaching Hours: 120**

RESEARCH METHODOLOGY

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee

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(AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.
   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati
   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti
6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda
   Fundamental research on concepts of
   Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-
   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

   concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
   Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

   Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.
    Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

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11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional

studies Prospective &

Retrospectives studies Cohort

studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKD

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PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research:

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Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

15. Familiarization with the use of Statistical software like SPSS/Graph Pad



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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

REFERENCE BOOKS

Pharmacognosy:

1. Aushotosh Kar "Pharmacognosy & Pharmacobiotechnology" New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
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   Pune.
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6. Trease G E and Evans W C, Pharinacognosy, Bailliere Tindall, Eastbourne, U K.
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9. Wallis- TE (2011)- reprint. Practical Pharmacgonosy (Fourth Edition) Pharma Med Press, Hyderabad.
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11. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003).World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

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Pharmaceutical chemistry, quality control and drug standardization:

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1to 3.
   Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
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   Wright Scienctechnica, Bristol.
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6. Kapoor, RC (2010). Some observations on the metal based preparations in Indian System of Medicine. Indian Journal of Traditional Knwoledge. 9(3): 562-575
7. Khopkar, S. M. Analytical Chemistry, New Age International Publishers , 3 rd
   edition
8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
9. Mahadik KR, Bothara K G. Principles of Chromatography by, 1st edition, Nirali
   Prakashan.
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11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO-
    Geneva.
12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and
    Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt
    Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants - INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

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Churchill Livingstone.
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University Press.
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6. Cooray P.G. Guide to scientific and technical writing.
7. Deepika Chawla and Neena Sondhi. (2011). Research Methods- Concepts and cases. New Delhi: Vikas Publishing House.
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Medicine. (3rd ed)
Blackwell
9. Kothari- CR (2004). Research Methodology- Methods and Techniques (Second Revised Edition). New Age International Publishers- New Delhi.
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ed. Thousand Oaks, CA, London: Sage
Publications.
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of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

Drug research and development:

1. RICK NG, (2009). DRUGS- from discovery to approval. John Wiley & Sons, Inc., Hoboken, New Jersey

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2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB 925).
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12. Bombay.\

12- Jaju B.P.: Pharmacological Practical Exercise Book, Jaypee Brothers, New Delhi. 13- Kulkarni S.K.: Hand Book of Experimental Pharmacology, Vallabh Prakashan, New Delhi

14- Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, JIPMER, Pondicherry.

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Biotechnology and Bio-informatics:

1. Angela M. Meireles A (2009). Extracting Bioactive compounds for food products.
   Theory and applications. CRC- Press Taylor and Francis Group.
2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
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6. Setubal J. C and J. Meidanis, Introduction to Computational Molecular Biology, PWS Publishing Company, 1997.
7. http://www.iitb.ac.in/~crnts.
8. http://www. zygogen.com.
9. http://www.dsir.nic.in/reports/tifp/database/metallo.pdf.
10. www.consort-statement.org
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12. www.icmr.nic.in

Clinical Evaluation:

1. CDSCO, Good Clinical Practices For Clinical Research in India, Schedule Y (Amended Version – 2005),http://cdsco.nic.in/html/GCP1.html
2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian
   Council of Medical Research- New Delhi.
3. Gallo P., Chuang-Stein C., Dragalin V., Gaydos B., Krams M., Pinheiro J.Adaptive Designs in Clinical Drug Development—An Executive Summary of the PhRMA
   Working Group. *Journal of Biopharmaceutical Statistics.* 16: 275–283; 2006
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6. ICH Harmonised Tripartite Guidelines for Good Clinical Practices.(1997)- Quintles- Published by Brookwood Medical Publications. Richmond, Surrey. United
   Kingdom.
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   Series. http://www.cancer.gov/clinicaltrials/ learning/clinical-trials-education- series, 2001.
8. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint
   of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
9. William C. Scheffer Introduction to Clinical Researchs

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1. Armitage, P. and Berry, G. (1994) Statistical Methods in Medical Research (3rd ed).
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3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford
   University Press.
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6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi –1.
7. Gupta S.P. - Fundamentals of statistics, Sultan Chand. Delhi.
8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers
    Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences.
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15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA PRELIMINARY

DRAVYAGUNA VIGYAN

(Materia Medica & Pharmacology)

PAPER-II **Theory 100 Marks**

PART-A **50 marks**

1. Panchamahabhuta siddhanta, Samanya Vishesha siddhanta, Tridosha siddhanta.
   Extensive study on classifications of Dravya as described in Brihattrayi.
2. Applied aspects of Rasa, Guna, Virya, Vipaka and Prabhava
3. Applied aspects of Aushdha karma with reference to Sharngadhara and Bhavaprakasha
4. Importance of Namarupa vigyan and concept of basonyms and synonyms of Dravyas
5. Applied knowledge of Bhaishajya Prayoga (marga, kalpana, matra, anupana, sevan, kala etc.)

PART-B **50 marks**

1. Basic principles of Desha pravichara, Dravya sangrahana (collection), Samrakshana (preservation)
2. Evolution of Dravyaguna vigyan with special emphasis on Nighantus
3. Prashasta bheshaj lakshana
4. Profound knowledge on applied aspects of Agrya aushadha
5. Methodology of studying controversial, pratinidhi (substitute), apamishrana (adulterant) and unidentified dravya
6. Pharmacognosy and its relevance in Dravyaguna vigyan
7. An integrated study of Charakokta Bheshaj pariksha and scientific method of drug evaluation with special reference to quality, safety and efficacy
8. Brief knowledge and importance of clinical pharmacology
9. General principles of various good cultivation practices, collection practices, storage practices and manufacturing practices
10. Pharmacovigilance and ADR issues
11. Knowledge on the Ayurvedic Pharmacopoeia of India, The Formulary of India and international pharmacopoeias

PRACTICAL **100 marks**

Contents

1. Field visits for the Identification of important classical medicinal plants (Minimum two visits to neighboring forest areas)
2. Macroscopic and microscopic identification of minimum two plants of each of prayojyanga (useful parts of plants)

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3. Preliminary study of pharmacoepial standards (API) of minimum 5 plants
4. Minimum two experiments on Animals

Distribution of marks (Practical)

1. Herbarium sheets -10 Marks
2. Practical of macroscopic and microscopic identification of prayojyanga (one part of the plant) -30 Marks
3. Practical record book of pharamcopoeial standards and animal experimentations -10 Marks
4. Spotting -30 Marks
5. Viva-voce -20 Marks

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REFERENCE BOOKS:

1	Abhinav Buti Darpan (Vol.1-2)	-	Vd. Roop Lal Vaishya
2	Aushadna Vigyna Shastra	-	Acharya Pt. Vishvanatha Dwidevi
3	Ayurvediya Aushadnkarma vigyana	-	Acharya V.J. Thakur
4	Bedi Vanaspati Kosha	-	Prof. Ramesh Bedi
5	Bhaishajyaguna Vigyana	-	Dr. Alakhnarayan Singh
6	Bhav Prakash Nigantu (English)	-	Shreekanthamurti
7	Bhav Prakash Nighantu	-	With Vd. Krishna Chandra Chunekar commentary
8	Bhrinad dravyagunadarsha	-	Mahendra Kumar Shastri
9	Classical Uses of Medicinal Plants	-	Acharya Priyavrata Sharma
10	Controversial Medicinal Plants	-	Vd. G. Bapa Lal
11	Dalhana Ka Dravyaguna Shastra Ke Kshetra Me Yogadana	-	Vd. Shiv Kumar Vyas
12	Dravyaguna Kosha	-	Acharya Priyavrata Sharma
13	Dravyaguna Sutram	-	Acharya Priyavrata Sharma
14	Dravyaguna Vigyana	-	Dr. Gyanendra Pandey
15	Dravyaguna Vigyana(Vol. 1-2)	-	Acharya Yadavji Tikram Ji
16	Dravyaguna Vijyana	-	Dr. V.M. Gogate
17	Dravyaguna Vigyana (Vol. 1-5)	-	Acharya Priyavrata Sharma
18	Dravyaguna Shastrum	-	Vaidya G.A. Phadake
19	Dravyaguna Vijyana	-	Dr. A.P. Deshpande
20	Dravyagunavijnana basic Principles	-	Prof.D.S.Lucas
21	Forgotten Healers (Indian Medicinal Plants)	-	Dr. Prakash Pranjape
22	Glossry of Vegetable Drugs in Bhrittrayis	-	Thakur Balwant Singh & Vd. Krishna Chandra Chunekar
23	Introduction to Dravyaguna	-	Acharya Priyavrata Sharma
24	Kriyatamka Aushadi Parichaya	-	Acharya Pt. Vishvanath Dwidevi
25	Materia Medica	-	Acharya Ghosh
26	Nighantu Adarsh (Vol. 1-2)	-	Vd. Bapa Lal

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27	Pharmacological basis of Medical Practice	-	Goodman & Gillman
28	Pharmacology and	-	Satoskar Bhandarkar & Ainapure
29	Prayogatamaka Dravyaguna Vigyana	-	Dr. Maya Ram Uniyal
30	Priya nighantu	-	Acharya Priyavrata Sharma
31	Raspanchaka/Dravyaguna Siddhanta	-	Prof. Shivcharan Dhyani
32	System of Plant Nomenclature in	-	Dr. Gyanendra Panday
33	Text Book of Pharmaconogy	-	Trees & Valis
34	Textbook of Dravyaguna	-	Dr.K.Nishteswar
35	Unani Dravyaguna Vigyana	-	Hakim Daljeet Singh

36	Useful parts of Charaka, Sushurut, and Vagbhata.	-	
37	Uttarakand Ki Vanaspatiya	-	Dr. Gyanendra Pandey
38	Vanoaushadi Darshika	-	Thakur Balwant Singh
39	Vanoaushadi Nidarshika	-	Dr. Ram Sushil Singh
40	Vedic Vanaspatiyan	-	Dr. Dinesh Chandra Sharma
41	Pharmacopia of India –all the volumes		
42	Database on medicinal plants all the volums of CCRAS		
43	Aurveda formulary of india – all the volums		
44	All the nighantoos		
45	Laghutrayi		

FinalM.D.Ayurveda

DRAVYAGUNA VIGYAN

PAPER-I NamarupaVigyana

100 marks

1. Importance of Namagyana of Dravya, origin of Namarupagyana of Aushadhi in Veda, etymological derivation of various names and synonyms of Aushadhi.
2. Rupagyana in relation to Aushadhi. Sthula and Sukshma description (Macroscopic and Microscopic study) of different parts of the plant.
3. Synonyms of dravyas(aushadha and Ahara) mentioned in Vedic compendia, Brihatrayee, Bhavaprakasha and Rajanighantu.
4. Basonyms, synonyms and distinguish morphological characteristic features of medicinal plants listed in Ayurvedic Pharmacopoeia of India(API).
5. Knowledge of Anuktadravya (Extrapharmacopial drugs)with regards to namarupa.
6. Sandigdhadravya(Controversial drugs) vinischaya.
7. Knowledge of biodiversity, endangered medicinal species.
8. Knowledge of TKDL, Introduction to relevant portions of Drugs and cosmetic act, Magic remedies Act, Intellectual Property Right (IPR) and Regulations pertaining to Import and Export of Ayurvedic drugs.
09. Knowledge of tissue culture techniques
10. Knowledge of Genetically Modified Plants

PAPER –II Guna Karma Vigyan

100 marks

1. Fundamental principles of drug action in Ayurveda and conventional medicine.
2. Detailed study of rasa-guna- virya- vipaka-prabhava and karma with their applied aspects and commentators (Chakrapanidatta, Dalhana, Arunadatta, Hemadri and Indu) views on them.
3. Comprehensive study of karma as defined in Brihatrayee&Laghutrayee
4. Detailed study of Guna and Karma of dravyas listed in API and BhavaprakashaNighantu along with current research review.

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5. Detailed study of aharadravya/ aharavarga ascribed in Brihatrayee and various nighantus along with Kritannavarga.
6. Pharmacologycal principles and knowledge on drugs acting on various systems.
7. Basic knowledge on experimental pharmacology for the evaluation of - analgesic, anti pyretic, anti inflammatory, anti diabetic, anti hypertensive, hypo lipidemic, anti ulcer, cardio protective, hepatoprotective, diuretics, adaptogens, CNS activites.
8. Knowledge on Heavy metal analysis, pesticidal residue and aflatoxins
9. Knowledge on evaluation of anti microbial and antimycotic activities.

PAPER – III Prayogavigyana

Marks 100

1. BhaishjyaPrayogSiddhant [Principles of drug administration] - BhaishajyaMarga (routes of drug administration), VividhaKalpana (Dosage forms), Principles of Yoga Vijnan(compounding), Matra (Dosage), Anupana (Vehicle), Aushadhagrahankal (Time of drug administration), Sevankalavadhi (duration of drug administration), Pathyapathya (Dos' /Donts' /Contraindications), complete Prescription writing (SamagraVyavasthapatraka).
2. Samyoga- ViruddhSidhanta and its importance
3. Amayikaprayoga (therapeutic uses) of important plants ascribed in as well as Brihattrayee, Chakradutta, Yoga ratnakara and Bhavaprakasha.
4. Knowledge of Pharmaco-vigilance in Ayurveda and conventional system of medicine.
5. Knowledge of clinical pharmacology and clinical drug research as per GCP guide lines.
6. Knowledge of Pharmacogenomics

PAPER- IV NIGHANTU PARICHAYA _YOGA VIGYAN

100 marks

1. Etymology of nighantu, their relevance, utility and salient features.
2. Chronological history of the following Nighantus with their authors name, period and content- Paryayaratnamala, Dhanvantarinighantu, Hridayadipikanighantu, Ashtanganighantu, Rajanighantu, Siddhamantranighantu, Bhavaprakashanighantu, Madanpalanighantu, Rajavallabhanighantu, MadhavaDravyaguna, Kaiyadevanighantu, Shodhalanighantu, Saligramnighantu, Nighanturatnakara, Nighantuadharsha and Priyanighantu
3. Detailed study Aushadhakalpana mentioned in Sharangadharasamhita and Ayurvedic Formulary of India (AFI).

4. General awareness on poshakaahara(Nutraceuticals),Varnya(cosmoceuticals), food addictives, Excipients etc.
5. Knowledge of plant extracts, colors, flavors and preservatives.
6. Review of important modern works on classical medicinal plants published by Govt of India, department of AYUSH and ICMR.

Syllabus of the Practical training of part two M.D. (Ayu) - Dravyaguna Practical:-

Study tours: Field identification of medicinal plants through at least three local Dravyaguna study tours within the state and one study tour out of state. Preparation of minimum 50 herbarium sheets, along with raw drug either from field, of plants be collected during study tours.

1. Evaluation of Crude drugs:
Macro and microscopic methods of examining five drugs of each of different useful parts of plants, including their powders.

2. Phytochemical evaluation of raw material:
Quantitative standards like foreign matter, extractive (water and alcohol), ash value, acid insoluble ash and TLC separation of various parts of minimum two plants of Ayurvedic Pharmacopoeia of India.

3. Yoga vijnana :
Preparation of two yoga of each kalpana of Ayurvedic Formulary of India:

4. Pharmacology:
Rasa nirdharana by Taste Threshold method of minimum one drug for each of rasas.
Observation of animal experimentation models (both in vitro and in vivo)- 05 models for possible rasadigunas.

5. Clinical
Regular clinical training in the hospital for submission of Single AushadhiPrayoga (Single drug trial/ Clinico-pharmacological studies.)
Survey for Amayikaprayoga of aushadhi(Pharmaco epidemiology) for studying their role in clinical practice in contemporary period -observational study-minimum.

6. **Dissertation**

A Dissertation, as per the approval of Departmental Research Committee/Competent Committee for the purpose, be prepared under the guidance of approved supervisor in Dravyaguna and submitted 6 months before the final examination. The approval of Dissertation shall be essential before appearing the final examinations.

7. Method of practical training – Posting for minimum one month in each of the following units -

Quality control laboratory of nearest pharmacy/institution for crude drug identification, adulterants and substitutes & understanding standardization techniques.

Experimental pharmacology laboratory for developing skills in animal experimentation

Regular clinical training in the Teaching hospital for studying EkalaAushadhiPrayoga& Adverse drug reactions(ADR).

8. Post Graduate Scholar is expected to present minimum two scientific papers in National / international seminars during the course of study

9. Post Graduate Scholar is expected to publish / get accepted at least one paper in indexed/ peer reviewed journal under the supervision of guide.

Pattern of Practical Examination- Total =200 marks

1. Herbarium	- 10 Marks
2. Pharmacognosy practical record	- 10 Marks
3. Pharmacology practical record	- 10Marks
4. Clinical records record	- 10 Marks
5. Practical examination(Identification of green and raw drugs, microscopic examination, Ekalaaushadhapariksha	- 60 Marks
6. Thesis Presentation	- 20Marks
7. Viva voce	- 80 Marks

Reference Books-

1. Rigvedasya Aushadhi Suktam - Sayana Bhashya Sahitam
2. Relevent portions of classical texts of Charak, Sushrut and Vagbhata
3. All available Nighantus
4. Dhanwantari Nighantu Rajnighantu Sahit
5. Sharngadhar Samhita
6. Yogaratnakar
7. Sharngadhar Samhita
8. Yogaratnakar
9. Dravyaguna Vigyanam - Yadavji Trikamji Acharya
10. Dravyaguna Vigyanam - Acharya Priyavrat Sharma
11. Aushadhiguna Vigyanam - Pt. vishwanath Dwivedi
12. Kriyatmak Aushadh Parichaya Vigyan - Pt. vishwanath Dwivedi
13. Abhinav Buti Darpana - Roopalal Vaishya
14. Aushadhagunadharma Shastra - Pt. Gangadhar Shastri Gune
15. Bhavprakash Nighantu - Dr.K.C.Chunekar Vedon

Main DravyagunaShastra - - Vishvanath Dvivedi
Kriyatmak Aushadhi Parichay Vigyana - Vishvanath Dvivedi
Kriyatmak Aushadhi Parichay Vigyana - Vishvanath Dvivedi
Nighantu Adarsha Purvardha & Uttarardha - Bapalal Vaidya Unani
Dravyaguna Adarsha - Hakim Dalijit Singh
Ayurved ki Aushadhiyan Aur Unka Vargikaran - Vishvanath Dvivedi
Aushadhi Vigyan Shastra - Vishvanath Dvivedi
Glossary of vegetable drugs in Bruhattrayi - Thakar Balwant Sing & Chunekar
Some contravertial drug in Indian Medicine - Dr.Bapalal Vaidya

16. Books on Dravyaguna by contemporary authors
17. Books on Pharmacognosy,
18. Books on General , Experimental & Clinical Pharmacology.
19. Ayurvedic Pharmacopia of India & other pharmacopias of the world

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20. Indian Pharmacopia
21. All the classical texts related to medicinal plants.
22. All the scientific publications on medicinal plants
23. Journals on medicinal plants
24. Different Floras

2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

Given under Clasue No. 2.10

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.

6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.

17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.

2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha *ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm*

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR

15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3 EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

MODEL QUESTION PAPER

MD (Ay.) PRELIMINARY EXAMINATION

Specialty: DRAVYAGUNAVIGYANA

PAPER II - DRAVYAGUNAVIGYAN

Time – 3 hours Maximum marks - 100

Answer all questions

Essay (20 marks)

1. Explain Panchamahabhootasidhanta and the role of this principle in Dravyachikitsa.

Short Essays (8X10 =80marks)

2. Define Guna. What is the role of Gurvadigunas in chikitsa?
3. What is Vipakam? Explain the level of action of different types of Vipaka.
4. Explain the mode of action of Adhobhaga mala nirharana karmas mentioned by Acharya Sargadhara with examples
5. Scientifically analyze different criteria proposed for the collection of Dravya (Dravyasamgrahanam).
6. Describe the methods of Drug Evaluation
7. Explain the role of Nighantus in the development of Dravyagunasastra.
8. Substantiate time of administration of drug (Bhaisajyakalam) according to Pharmacological principles.

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9. Write short notes on a). Pradhinidhidravyas and its importance
   b). Pharmacovigilance and its importance

MODEL QUESTION PAPER

FINAL MD (Ay) EXAMINATION

Specialty: DRAVYAGUNAVIGYANA

PAPER I – NAMARUPA VIGYAN

Time – 3 hours Maximum marks - 100

Answer all questions

Essay (20 marks)

1. Describe ancient and recent methods used in the identification of drugs

Short Essays (8X10 =80 marks)

2. Explain the criteria utilized for the nomenclature of drugs.
3. Describe the taxonomical features of the drug “Eranda” with the help of a neat diagram
4. Illustrate the organoleptic characters of “Asoka bark” and “Hareetaki fruit” with the help of diagrams
5. Explain the methods of Standardization of Ayurvedic crude drugs.

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6. Give scientific rationale to the criteria described in Ayurvedic classics for the collection of Dravya (Dravya samgrahanam).
7. Describe the controversial aspects of “Rasna” in detail
8. Explain different methods employed in the detection of illegal substitutes and adulterants with examples
9. Write short notes on a). TKDL
   b). Tissue culture technique

FINAL MD (Ay) EXAMINATION

Specialty: DRAVYAGUNAVIGYANA

PAPER II –GUNA KARMA VIGYAN

Time – 3 hours Maximum marks - 100

Answer all questions

Essay (20 marks)

1. Define “Karmam”. Explain the pharmacodynamics of various “Sodhana” karmas described by Acharya Sargadhara with examples

Short Essays (8X10 =80 marks)

2. Differentiate “Rasam” and “Anurasam” of a drug

3. Explain the clinical applications of Gurvadi gunas
4. Describe the concept of Veerya in the context of potency of drug
5. Explain the level of pharmacological action of Vipaka of dravya with suitable examples.
6. Explain the Rasapanchaka and mode of action of the drug “Vasa”
7. Describe the controversial aspects of “Rasna” in detail
8. Describe the methods of safety evaluations of drug
9. Design an experiment for the anti-inflammatory screening of an Ayurvedic drug

FINAL MD (Ay) EXAMINATION

Specialty: DRAVYAGUNAVIGYANA

PAPER III –PRAYOGA VIGYAN

Time – 3 hours Maximum marks - 100

Answer all questions

Essay (20 marks)

1. Describe the principles of Drug administration according to Ayurvedic pharmacology

Short Essays (8X10 =80 marks)

2. Explain the advantages and disadvantages of different routes of administration of Ayurvedic drugs
3. What are the implications of Pathyas and Apathyas in chikitsa?
4. Describe the pharmacotherapeutics of the drug “Haridra” with respect to Kalpanabheda
5. Mention the useful parts of the drug “Vilvam” and explain their therapeutical benefits. -
6. What is Drug incompatibility? Describe the concepts in Ayurveda.
7. Give a brief introduction to Reverse Pharmacology
8. Describe the role of Anupana in drug administration with suitable examples
9. Write the protocol for RCT to be conducted on an Ayurvedic drug

FINAL MD (Ay) EXAMINATION

Specialty: DRAVYAGUNAVIGYANA

PAPER IV –NGHANTU PARICHAYA - YOGAVIGYAN

Time – 3 hours Maximum marks - 100

Answer all questions

Essay (20 marks)

1. Substantiate the scientific rationale of Yogas and Ganas in Ayurvedic classics

Short Essays (8X10 =80 marks)

2. Describe the role of Nighantus in the study of Dravyagunavinanam

3. Explain the salient features of Bhavaprakasa Nighantu?
4. Describe the classification of Ahara dravyas in important Nighantus
5. Write the formulation – Avipathikara choorna. Critically analyze each ingredients in the framework of “samyoga” sidhanta”
6. Describe the important methods of standardization of Ayurvedic formulations
7. Explain the standards of Good Manufacturing Practices
8. Discuss the merits and demerits of Herbal extracts
9. Write short notes on a) Food additives
   b) Neutraceuticals

3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10 & 2.25

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

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(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

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(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

c) State in a neutral manner

d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5

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6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Roga Nidana evam Vikriti Vigyana

(M.D. (Ayurveda)- Diagnostic procedure and Pathology)

Course Code 255

(2016-17 Academic year onwards)

2016

2 COURSE CONTENT

2.1 Course Title & description

Ayurveda Vachaspati – Roga Nidana evam Vikriti Vigyana

(M.D. (Ayurveda)- Diagnostic procedure and Pathology)

2.2 objectives

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 **Duration:** 3 years

2.6 Syllabus

Given under clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under clause no.2.10

2.8 Branches if any with definition

Given under clause no.2.10

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis

d. Defining general and specific objectives
e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
f. Sample design
g. Collection of the data
h. Analysis of data.
i. Generalization and interpretation, evaluation and assessment of hypothesis.
j. Ethical aspects related to human and animal experimentation.
k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.

4. Scientific writing and publication skills.
a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
b. Different types of referencing and bibliography.
c. Thesis/Dissertation: contents and structure
d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

5. Classical Methods of Research.
Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati
Aushadhi-yog Parikshana Paddhati

Swastha, Atura Pariksha Paddhati

Dashvidha Parikshya Bhava

Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.

7. Different fields of Research in Ayurveda
Fundamental research on concepts of Ayurveda
a. Panchamahabhuta and tridosha.
b. Concepts of rasa, guna, virya, vipak, prabhav and karma
c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

8. Literary Research-
Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of

drug identification.

Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.

Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional

studies Prospective &

Retrospectives studies Cohort

studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

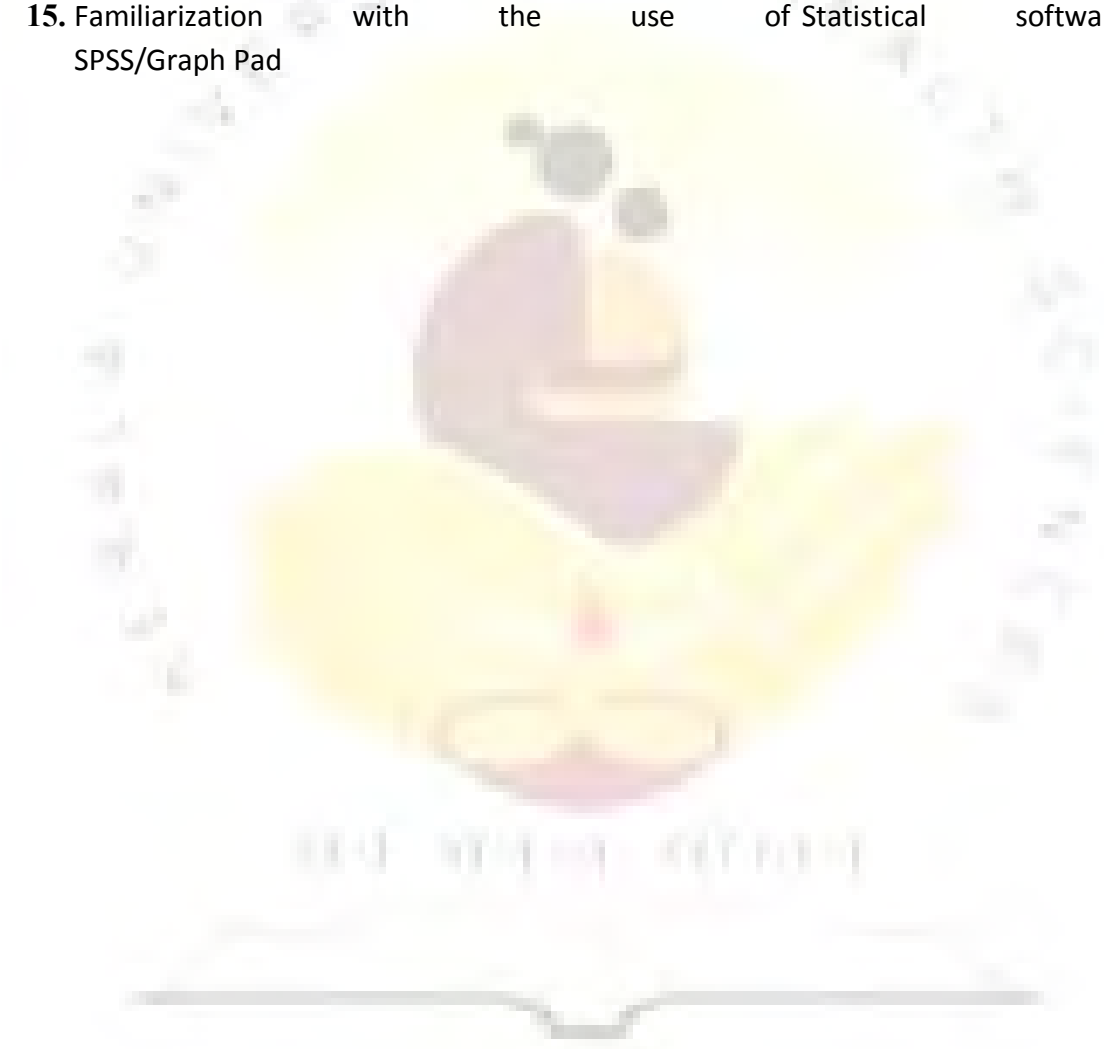
1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple

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13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad



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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

REFERENCE BOOKS:-

Pharmacognosy:

1. Aushotosh Kar "Pharmacognosy & Pharmacobiotechnology" New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
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4. Kokate, CK., Purohit, AP, Gokhale, SB (2010). Pharmacognosy. Nirali Prakashan. Pune.
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7. Tyler V C., Brady, L R., and Robers J E., Pharmacognosy, Lea and Febiger, Philadelphia.
8. Tyler VE Jr and Schwarting AE., Experimental Pharmacognosy, Burgess Pub. Co, Minneaplis, Minnesota.
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12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003).World Health Organization- Geneva.
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Pharmaceutical chemistry, quality control and drug standardization:

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
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5. HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic Pharmacopoeia Vol- III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA. New Delhi.
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8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
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14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants - INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

Biochemistry and Laboratory techniques:

1. Asokan P. (2003) Analytical Biochemistry, China publications,
2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.

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12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

Research methodology:

1. Alley, Michael. The craft of scientific writing. Englewood Cliffs. N.N. Prentice 1987.
2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
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12. Relevant portions of Ayurvedic Samhitas and other texts

Drug research and development:

1. RICK NG, (2009). DRUGS- from discovery to approval. John Wiley & Sons, Inc., Hoboken, New Jersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB 925).
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4. WHO Guidelines on Safety Monitoring of herbal medicines in pharmacovigilance systems. (2004). WHO- Geneva. ISBN 92 4 1592214.
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14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA PRELIMINARY

ROGA NIDANA AVUM VIKRITI VIGYAN

(Pathology and Diagnostic Procedure)

PAPER-II **Theory 100 marks**

PART-A **50 marks**

1. Understanding of Samprapti of diseases in Charaka Nidana Sthana in contemporary context
2. Clinical aspects of Dosha, Dhatu, Upadhatu, Mala, Agni, Ama, Srotas and Indriya
3. Understanding of the role of Trividha Avasthapaka in the vitiation of Dosha
4. Concept of Nanatmaja and Samanyaja Vikara
5. Clinical application of Avarana in diagnosis of various diseases
6. Clinical application of Shatkriyakala in diagnosis of diseases.
7. Clinical and applied aspects of concept of Upadrava and Arista

PART-B **50 marks**

1. Ayurvedic interpretation of various laboratory investigations to derive treatment principles.

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2. Interpretation of various Rogi Bala and Roga Bala technique to plan Chikitsa Sutra
3. Clinical examination of Deha Bala, Roga Bala, Agnibala And Chetas Bala
4. Knowledge of current diagnostic tools like ECG, X-Ray, CT scan, MRI and USG

Contents:

PRACTICAL **100 marks**

1. Duty in hospital OPD and IPD.
2. Duty in pathology laboratory.
3. Case taking – 25 cases
4. Performance of pathology and biochemistry practicals – 10 cases
5. Interpretation of ECG, EEG, X-ray, CT-Scan, MRI and USG

Distribution of marks (Practical)

1. Case record (25 Cases) - 10 Marks
2. Bed side clinical case taking
   a. Long case - 20 Marks
   b. Short case - 10 Marks
3. Laboratory Practicals - 20 Marks
4. Interpretation of ECG, EEG, X-ray, CT-Scan, MRI and USG - 10 Marks
5. laboratory experiment record - 10 Marks
6. Viva-voce - 20 Marks

REFERENCE BOOKS:

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1. Madhav Nidan (Madhukosha Commentary)
2. Relevant portions of Charak Samhita, Sushrut Samhita and Vagbhata
3. Doshakaranatwa Mimamsa - Acharya P.V. Sharma
4. Nadi pariksha - Vb Athavale
5. Nadi Pariksha – - GP Upadhyay
6. Rogi Pariksha vidhi - Acharya Priyavrata Sharma
7. Nidan Panchak - Shivcharan Dhyani
8. Vyadhivigyan I and II - Yadav Thrikamji
9. Ayurvediya Roga Vargikaran - Vd. Ramanat Vd. Gurdip Singh
10. Ayurvediya Nidan Evum Chikitsa Ke Siddhanta - Prof. Ram Harsh Singh
11. Clinical methods in Ayurveda - K. R . S. Murthy
12. Parameswarappa's Ayurvediya Vikriti Vigyan & Roga Vikriti Vigyan - Dr. P.S. Byadgi.
13. Oxford Handbook of Clinical Examination and Practical Skills
14. Symptoms & Signs in Clinical Medicine - Chamberlains
15. Hutchison's Clinical Methods
16. Bedside Clinics in Medicine Part- I & II - Kundu
17. Practical Pathology - Dr. K. Uma Chaturvedi
18. Medical Laboratory Technology - R. Sood
19. Clinical Diagnosis and Management by Laboratory methods -Todd, Sanford and Davidson

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PAPER- I FUNDAMENTAL PRINCIPLES OF ROGANIDANA

Concept of Tridosha and its Pathological implications. 63 permutations and combination of Tridosha. Lina and Stambhita Dosha, their cause and importance in manifestation of Samprapti

Concept of Rakta as a Chaturtha Dosha. Importance of Rakta in the manifestation of

Concept of Ashrayashrayi bhava and its applied utility.

Different types of Dosha Gati.

Causative factors and practical utility of movement of Doshas from Kostha to Shakha and

Trayo roga marga, their diseases and clinical importance of Roga Marga.

Concept and classification of Avarana, its role in pathogenesis, mode of diagnosis of

Applied aspect of Dhatu Poshana Krama and Dhatu Samvahana. Concept of Margaga and

Conept and applied aspects of Doshapaka and Dhatupaka

Fundamental and applied aspect of Dhatu, Upadhatu and Mala. Diseases developed due to their

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Concept and applied aspects of Srotas, their importance in health and diseased conditions. Concept and applied aspects of Sroto Dushti and Khavaigunya. Understanding the various srotas which are not included in classical list of srotas but enumerated while describing the Description of Dosha-Dushya-Sammurchhana, Concept of Prakriti Sama Samaveta and Vikriti Vishama Samaveta Sammurchhana. Importance of Dosha-Dushya-Sammurchhana in Concept of Vikara vighata bhavabhava prativisesha.
Concept of Agni and its role in manifestation of health and disease.
Concept and pathogenesis of Ama. Contemporary interpretation of Ama and its role in Sama, Nirama stages of Dosha, Dhatu and Mala.
Understanding Samprapti of Santarpanottha and Apatarpanottha Vyadhi
Detailed classification of diseases as described in Ayurveda. Knowledge of ICD and DSM
Detailed understanding of Nidan Panchaka with their classification and clinical importance.
Relation between 'Hetu & Lakshana' and 'Samprapti & Lakshna'.
Explanation and applied aspects of Kriyakala and its utility in diagnosis and treatment.
Importance of Upadrava, Arishta and Sadhyasadhyata and Udarka.

PAPER – II ROGA VIGYANA

Knowledge of classical Samprapti of following diseases with interpretation of Nidana Panchaka including Upadrava, Arishta and Sadhyasadhyata and Chikitsa Sutra. Knowledge of commonly occurring diseases of the respective systems mentioned in contemporary medicine and their Ayurvedic interpretation.

1. Diseases of Pranavaha srotas- Kasa - Shwasa - Hikka – Urahkshata – Shosha – Rajayakshma and Ayurvedic understanding of common clinical entities like Pneumonia, Pleural effusion, Bronchitis, Bronchiectasis, Pulmonary Tuberculosis, Bronchial Asthma.
2. Diseases of Annavaha- Pureeshavaha Srotas- Agnimandya - Ajirna - Aruchi- Chhardi, Amlapitta- Shoola, Grahani –Gulma- Udara Roga –Vibandha, Atisara – Pravahika along

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with various clinical presentations. Ayurvedic understanding of common clinical entities like Peptic Ulcer, Irritable Bowel Syndrome, Diarrhoea, Dysentry, Constipation, ulcerative colitis.

3. Diseases of Udakavaha Srotas- Trishna, Daha and knowledge of water and electrolyte imbalance disorders
4. Diseases of Rasavaha Srotas - jwara and Ayurvedic understanding of common clinical entities like various types of Fever- Malaria, Typhoid, viral fevers. Pandu, Amavata, Hridroga, Shotha and Ayurvedic understanding of common clinical entities like Anaemia & its Classification, Rheumatic fever, Rheumatoid Arthritis, Angina, Ischaemic Heart Disease, Hypertension, Myocardial Infarction ,Congestive cardiac failure.
5. Diseases of Raktavaha Srotas- Kamala - Raktapitta - Vatarakta – Kroshtukaseersha - Shitapitta – Maha Kushta – Visarpa – Shwitra and Kshudra Kushta and Ayurvedic understanding of common clinical entities like jaundice, hepatitis, bleeding disorders, Gout, Thrombo Angitis Obliterens (TAO), Deep Vein Thrombosis (DVT), Leukaemia, Thalessemia, Sickle cell Anaemia. Introduction to Urticaria, Psoriasis, Eczema, Pemphigus, Herpes.
6. Diseases of Mamsavaha srotas- Introduction to Granthi, Arbuda,Galaganda and Arsha. Ayurvedic understanding of all types neoplasia and Thyroid diseases.
7. Diseases of Medovaha srotas- Sthoulya - Karshya – Prameha and Ayurvedic understanding of common clinical entities like Obesity and Diabetes Mellitus.
8. Diseases of Asthi - Majjavaha srotas- Sandhigatavata, Introduction to Asthi-majjaparipaka, Asthigata Vidradhi and Ayurvedic understanding of common clinical entities like Osteo- Arthritis, Osteomyelitis, Osteoporosis.
9. Vatavyadhi-Akshepaka - Apatanaka - Ardita - Pakshaghata – Gridhrasi – Viswachi, Avabahuka, Manyasthambha – Katigraha-Pangutwa- Khanja-Khalwee and Ayurvedic understanding of common clinical entities like Hemiplagia, Parkinson's disease, Lumbago- Sciatica syndrome, Bell's Palsy, Ankylosing Spondylitis, MND and other commonly occurring neurological diseases.
10. Diseases of Sukravaha srotas- Klaibya and Vandhyatva and understanding of male and female Infertility, Impotence.
11. Diseases of Mutravaha srotas -Mutrakrichha – Mutraghata, Ashmari and Ayurvedic understanding of common clinical entities like Urinary Tract Infection, Urolithiasis, Nephropathies and Renal failure.
12. Diseases of Swedavaha srotas-knowledge of khalitya, Palitya and Cosmetology.
13. Diseases of Manovaha Srotas - Vishada, Udvega, Bhaya, Bhrama, Anidra, Mada, Murchha, Sanyasa, Apasmara, Unmada, Atatwabhinivesha and Ayurvedic understanding of common clinical entities like Depression, Anxiety neurosis, Phobia, Personality disorders.
14. Indriya Pradoshaja Vikara.
15. Jara janya Vyadhi: Alzheimer's Disease
16. Concept and tools for the study of Anukta Vyadhi (Unexplained and newly emerging diseases).
17. Understanding the concept of karmaja vyadhi

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PAPER – III PARIKSHA VIGYANA

1. Introduction to Clinical methods and technique for the study of clinical examination
2. Importance of medical history taking and its importance in clinical medicine.
3. Aims, Objectives and Methods, applied aspects and importance of various Rogi and Roga Pariksha as per classics.
4. Srotas Pariksha, Shadanga Pariksha vis-à-vis general & systemic examination of patient.
5. Interpretation of Charakokta trividha pramana pariksha and Sushrutokta shadvidha pariksha with clinical methods mentioned in modern medicine.
6. Interpretation and use of ashtasthana nirikshana along with use of current tools as per Ayurveda.
7. Charakokta dashavidha and Sushrutokta Dwadashavidha pariksha along with the use of modern supportive tools for understanding of rogibala and roga bala concept to derive chikitsa sutra
8. Ayurvedic interpretation of all relevant findings of modern clinical examinations, various Laboratory and other Diagnostic tools.
9. Understanding of diagnostic procedures in medical emergencies.
10. Concept of Good clinical practice in Ayurveda and modern medicine.
11. Knowledge of standard clinical laboratory set up useful for Ayurvedic practice.
12. Knowledge of Ancillary common laboratory investigations for diagnosis of diseases, their methods, normal and abnormal values, factors influencing values and their Ayurvedic interpretations & clinical significance as mentioned in practical syllabus.
13. Importance of Bio markers and their utility in clinical researches
14. . Update knowledge of emerging diagnostic tools and technologies.
15. . Knowledge of various Ayurvedic diagnostic softwares/programmes available.
16. Avayava Pariksha – Radio- Imaging Techniques, Sonological Techniques, ECG, EEG etc and their clinical interpretation.

PAPER - IV VIKRITI VIGYANA AND JIVANU VIGYANA

1. Introduction to pathology and technique for the study of pathology
2. Cell injury and cellular adaptations
3. Immunopathology including amyloidosis and its interpretation with the concept of Ojas vis-à-vis Bala
4. Concept of Shotha versus Inflammation, oedema and healing
5. Derangement of Homeostasis and Hemodynamic disorders
6. |General character and classification of Neoplasia
7. Upasargajanya Vyadhi (Communicable diseases)- Romantika – Masurika – Upadamsha – Phirang and introduction to Syphilis, AIDS,

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Leprosy, Tuberculosis

8. Detail study of Krimi Vigyanam versus infectious and parasitic diseases along with their mode of infection and life cycle
9. Concept of Snayuka, Shleepada and introduction to Filariasis and classification of common parasites.
10. Concept and applied aspects of Janapadodhvamsa and Environmental diseases
11. Nutritional disorders
12. Concept of genetic diseases and its interpretation in terms of Bija dosha
13. Knowledge of common Bacteria, Virus, Parasites, Fungi and their classification with their disease processes, Nutrition requirements, media and methods for culture and sensitivity

PRACTICAL DEMONSTRATION AND HANDS ON EXPERIENCE

1. Regular posting in Roga Nidana O.P.D.
2. Regular posting in Roga nidana I.P.D.
3. Regular posting in Laboratories
4. Regular posting in other departmental units and Educational Tour to update current medical knowledge
5. Laboratory record – maintenance of observation diary and laboratory record book.
6. Experience in conducting following laboratory investigations for diagnosis of diseases and their methods
   a) Hematological, Biochemical and Serological measures, Peripheral blood film examination
   b) Rapid diagnostic techniques.
   c) Screening test for bleeding disorders- Platelet Count, bleeding time (BT), Clotting
   d) Blood grouping - ABO system, Rh typing (Rhesus system)
7. Urine Examination
   a. Ayurveda anusara mutra pariksha.
   b. Physical Examination, Chemical Examination, and Microscopic Examination
   c. Dipstix examination
8. Stool Examination
   i. Ayurveda anusara purisha pariksha-Physical examination - Sama-Nirama Pariksha
   ii. Microscopic and macroscopic examination of stool
9. Sputum Examination
   i. Ayurveda pariksha anusara sthivana.
   ii. Physical, Chemical and Microscopic Examination of the sputum.
10. Semen examination
    1) Ayurvediya anusara Retas pariksha.
    2) Semen examination & clinical interpretation
11. Biochemical tests related to various organ panels- Liver, Kidney, Heart, Thyroid, Pituitary and Bones.
12. Knowledge of different staining techniques in microbiology.

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13. Knowledge of Sero-immunological Investigations: RA, Widal test,ASLO titer,ANA,Etc
14. Physical, chemical, microscopic, biochemical and bacteriological tests for various kinds of body aspirates
15. Knowledge of histopathological techniques.

BEDSIDE PRACTICAL /CLINICAL METHODS

1. Expertise in clinical methods (General and Systemic Examination).
2. Practical knowledge of examination of Roga based on Pancha Nidan.
3. Practical knowledge of instruments used for clinical examination.
4. Practical records of clinical examination of at least 30 long cases in I.P.D.
5. Practical records of clinical examination of at least 50 short cases.
6. Practical knowledge of ECG, USG and Imaging techniques and their clinical interpretation
7. Understanding of various Ayurvedic diagnostic softwares/programmes available like Ayu soft, Rudra,Ayut Nidana etc.

PATTERN OF EXAMINATION

Name of Paper	Hours of training	Marks
Paper I	100	100
Paper II	100	100
Paper III	100	100
Paper IV	100	100
Practicals:	Hospital/Laboratory duties at least 4 Hours per day	Total 200 :
Observation Diary		10
Laboratory record		10
Short Case (including Case Record)		20
Long Case (including Case Record)		30
Laboratory Work		40
Thesis Presentation		40
Viva Voce		50

REFERENCE BOOKS

1. Charaka Samhita with Various Commentaries
2. Madhava Nidana with various commentaries
3. Abhinava Vikriti Vigyana - Acharya Raghuvir Prasad Dwivedi
4. Doshakaranatwa Mimamsa - Acharya P.V. Sharma
5. Nadi Darshan - Vd. Tara Shankar Mishra
6. Nadi Vigyanam - Vidyotini Hindi Tika

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7. Nadi Vigyan - Shri Satya Dev Vashisht
8. Nadi Vigyan - Gangadhar Tika
9. Nadi pariksha - Vaidya VB Athavale
10. Nadi Pariksha - GP Upadhyay
11. Rogi Pariksha vidhi - Acharya Priyavrata Sharma
12. Roga Vigyan - Dr.Vinay Kumar
13. Siddanta Nidan - Gananatha Sen
14. Ayurvediya Roga Vargikaran - Vd. Ramanath and Vd. Gurdip Singh
15. Ayurvediya Nidan Evum Chikitsa Ke Siddhanta - Prof. Ram Harsh Singh
16. Relevant portions of Charak Samhita, Sushrut Samhita and Vagbhata
17. Clinical methods in Ayurveda - K. R . S. Murthy
18. Parameswarappa's Ayurvediya Vikriti Vigyan and Roga Vikriti Vigyan - Dr. P.S. Byadgi.
19. Nidan Panchaka - Prof SC Dhyani
20. Samprapti lakshana yoh sambhandah - K.Sadashiva Sharma
21. Clinical Diagnosis in Ayurveda in Roga Nidana and Vikriti Vigyana - Vaidya Vasant Patil
22. Oxford Handbook of Clinical Examination and Practical Skills - Oxford Handbooks
23. Symptoms & Signs in Clinical Medicine - Chamberlains
24. Clinical Methods - Hutchinson's
25. Bedside Clinics in Medicine Part- I & II - Kundu
26. Practical Pathology - Dr. K. Uma Chaturvedi
27. Medical Laboratory Technology - R. Sood
28. Clinical Diagnosis and Management by Davidson - Todd, Sanford and Laboratory methods
29. Robbins Basic Pathology - Kumar, Abbas, Fausto at
30. Text Book of Pathology - William Boyds.
31. Text Book of Pathology - Harsh Mohan
32. Text Book of Pathology - Dey and Dey
33. Text Book of Parasitology - Ramnik Sood
34. Clinical Pathology and Bacteriology - S.P. Gupta
35. A Text Book of Microbiology - Ananthanarayana, Panikar

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2.11 No: of hours per subject

Given under Clause. 2.10

2.12 Practical training

Given under Clause 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication

11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clause. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under Clause. 2.10

2.19 Reference books

Given under Clause. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.

2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor-AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha *ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm*

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3 EXAMINATIONS

3.1 Eligibility to appear for exams [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

A minimum of 80% attendance both in second and third years taken together.

Accepted Dissertation work

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after admission;

b. The final examination shall be conducted on completion of three academic years after the admission to PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately to be announced as pass.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question
Short essay 10 marks - Eight questions
Total 9 questions for 100 marks

3.4 Papers in each year

Given under Clause. 2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under Clause. 2.10

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

PG Ayurveda Preliminary Model Question

(2012 scheme)

(**Roganidana Avum Vikritivijnana**)

Paper II –Moulika Sidhantha

Time : 3 hrs **Max marks : 100**

Answer all questions

Essay 20 marks

1. Explain the samprapti of raktapitta and correlate it with the clinical conditions in modern medicine

Short essays **(8x10=80)**

2. What are upadhatus. Explain the role of upadhatus in the samprapti of disease with examples
3. Explain avasthapaka and its role in vitiation of doshas
4. Differentiate between nanatmajs vikara and samanya vikara
5. Explain the role of laboratory investigations in neurological diseases to formulate treatment protocol
6. Explain “how agnidushti will cause diseases
7. Explain the methods to assess the roga bala
8. Explain trividhsbala and correlate it with vyadhikshamatwa
9. Discuss the various indications of ultrasonography and mention the preparation of a patient before U.S.

FINAL YEAR PG AYURVEDA DEGREE EXAMINATIONS- OCT- 2015

(2012 Admission)

MODEL QUESTION PAPER (ROGNIDAN)

PAPER - I – FUNDAMENTAL PRINCIPLES OF ROGA NIDANA

TIME – 3 hrs. Max. mark 100

Answer all questions

Essay

1. Describe dosha- dooshya samurchana and its importance in diagnosis & treatment. (20 marks)

Short essays (8× 10 Marks = 80)

2. Role of avarana in the pathogenesis of disease ?.
3. Explain rogamarga in detail and its clinical importance ?
4. Discuss doshapaka & dhatupaka ?
5. Explain the role of Ama in annavahasroto vikara ?
6. Discuss upadhatu pradoshaja vikara ?
7. Explain apatarpanottha vikaras?
8. Explain the role of nidana in causation of diseases?
9. Clinical importance of upadrava & arishta.

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FINAL YEAR PG AYURVEDA DEGREE EXAMINATIONS- OCT- 2015 (2012 Admission)

MODEL QUESTION PAPER (ROGNIDAN)

PAPER - II – ROGA VIGNANA

TIME – 3 hrs. Max. mark 100

Answer all questions

Essay (20 marks)

1. Describe vyadhi and its classification in detail. Enumerate ICD and DSM classification of diseases.

Short essays (8× 10 Marks = 80)

2. Explain the samprapthi of rajayakshma with its comtemperory relevance ?
3. Role of shatkriyakala in manifestation of Amavata?
4. Describe the role of medovahasrotodushti in the pathogenesis of prameha?
5. Discuss indriyapradoshaja vikara in detail?
6. Critically analyse the role of doshagathi in kamala?
7. **C**oncept of anukta vyadhi in newly emerging diseases ?
8. Explain the role of manovaha srotas in unmada?
9. Analyse the samprapthi of pandu with reference to anemia ?

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INAL YEAR PG AYURVEDA DEGREE EXAMINATIONS- OCT- 2015 (2012 Admission)

MODEL QUESTION PAPER (ROGNIDAN)

PAPER - III – PARIKSHA VIGYANA

TIME – 3 hrs. Max. mark 100

Essay (20 marks)

1. Explain trividha pareeksha and how the modern instruments can be incorporated in trividha pareeksha.

Short essays (8× 10 Marks = 80)

2. Laboratory investigations & radio imaging techniques in rheumatology?
3. Laboratory investigations in bleeding disorders?
4. Site the scheme of chest X ray reading.
5. Investigation scheme in MI ?
6. What are ashtasthana pareeksha? How far it is useful in the present era for diagnosis.
7. What are renal function tests. How they help in the diagnosis of mootravahasrotogata vikaras.
8. Role of imaging technique in CVA ?
9. What are the main investigations in Gasto-intestinal disorders and the scheme of examination.

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FINAL YEAR PG AYURVEDA DEGREE EXAMINATIONS- OCT- 2015 (2012 Admission)

MODEL QUESTION PAPER (ROGNIDAN)

PAPER - IV – VIKRITI VIGYANA AND JIVANU VIGYANA

TIME – 3 hrs. Max. mark 100

ESSAY (20 MARKS)

1. Explain hypersensitivity ?

Short essay (8× 10 Marks = 80)

2. Explain shock ?
3. Mention reversible cell injury ?
4. Explains the methods of Identification of bacteria with its morphological charaters ?
5. Descrie the morphology, lifecycle, pathogenecity and laboratory diagnosis of Entamoeba histolytica ?
6. Explain superficial mycoses ?
7. Define janapadodhwamsa and its relevance ?
8. Detail the general characteristics of neoplasia ?
9. Importance of trividha bala in vyadhikshamatva ?

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3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10

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3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

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(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

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(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

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Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.

2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)

2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Rasa Shastra

evam Bhaishajya Kalpana

(M.D. (Ayurveda) – Pharmaceuticals)

Course Code 298

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Vachaspati – Rasa Shastra evam Bhaishajya Kalpana

(M.D. (Ayurveda) – Pharmaceuticals)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their

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respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Syllabus

Given under curriculum clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

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M.D./M.S.-AYURVEDA PRELIMINARY

PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks

Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics

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Committee

(AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.

   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati

   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda

   Fundamental research on concepts of

   Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma

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c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

8. Literary Research-

Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.

Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations.
Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.

Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

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Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies Longitudinal & Cross sectional studies Prospective & Retrospectives studies Cohort studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data

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(Definition, utility and methods)

3. Scales of Measurements- nominal, ordinal, interval and ratio scales.

   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete

4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:

   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance

9. Univariate analysis of categorical data:

   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals

10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:

    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple

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13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation

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5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and toxicology
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15.

Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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Pharmacognosy:

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2. Drug Survey by Mayaram Uniyal
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Pharmaceutical chemistry, quality control and drug standardization:

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   Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
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3. Galen Wood Ewing (1985). Instrumental Methods of Chemical Analysis. McGraw- Hill College ; Fifth edition
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11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO- Geneva.
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13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev

Dutt

Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants - INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY-Trieste,

Biochemistry and Laboratory techniques:

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2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
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Research methodology:

1. Alley, Michael. The craft of scientific writing. Englewood Cliffs. N.N. Prentice 1987.
2. Ayurvediya Anusandhan Paddhati – P.V. Sharma

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13- Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan,New Delhi*
14 Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondiche rry.*

Biotechnology and Bio-informatics:

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2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
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12. www.icmr.nic.in

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Medical Statistics:

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14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA PRELIMINARY

RASA SHASTRA AND BHAISHAJYA KALPANA

(Iatrochemistry & Pharmaceuticals Science)

PAPER-II **Theory 100 marks**

PART-A **50 marks**

1. Fundamental principles of Rasa Shastra and Bhaishajya Kalpana, introduction to Rasachikitsa, Ashuddha and Apakwa Bhasma- sevan Dosha and its management, introduction to Aushadha Sevan Kaal and Prayoga Marga (routes of administration).
2. Introduction to basic principles of Aushadha Yoga (formulations).
3. Classification of Rasa Dravya - concept and relevance.
4. Introduction to principles of Aushadha Nirmana, concept of Shodhan, Marana, Jarana, Murcchhana, Sattvapatan and Amritikarana.
5. Concept of Kashaya, Panchavidha Kashaya and other Kalpana.
6. Concept of Rasashala, Rasa Mandapa with introduction to pharmacy in accordance with the Good Manufacturing Practices (GMP).
7. Critical study of Rasa Ratnasamuchchaya, Rasendra Chintamani, Rasa Tarangini, Sharngadhara Samhita, Chakradutta and Bharat Bhaishajya Ratnakara with special reference to Aushadha-Nirmana.

PART-B **50 marks**

1. Introduction to methods of analytical, toxicity, experimental and clinical validation of classical and proprietary Ayurvedic formulations.
2. Introduction to new dosage forms.

3. Introduction to advance instruments of analysis like XRD, XRF, SEM-E-Dax, ICP analysis, Chromatography: TLC, gas chromatography, HPTLC, concept of Nanotechnology and its relevance to Aushadha-Nirman.
4. Concept of Pharmacopoeia and Formulary with introduction of 'The Ayurvedic Pharmacopoeia of India' (API) and 'The Ayurvedic Formulary of India' (AFI).
5. Introduction to databases of medicinal plants published by CCRAS, ICMR and others.

PRACTICAL **100 marks**

Contents:

1. Shodhan, Marana, Amritikarana of Rasa Dravya (10 practicals)
2. Preparation of different dosage forms (10 forms)
3. Pharmacop oeial standards of raw and prepared drugs (20 practicals)

Raw Materials

1. Minerals and Metals

Mineralogical Identification

1. Physical form - Crystal and Amorphous
2. Hardness on Moh's scale
3. Brittleness test
4. Fracture and Cleavage
5. Streak test
6. Luster

2. Plant Material

Macroscopic and Microscopic examination

1. Orgnaoleptic testing
2. Estimation of Foreign materials
3. Microbial load
4. Moisture content
5. Determination of ash value - total, water soluble and acid Insoluble ash
6. Specific gravity
7. Solubility- water and alcohol
8. Extract values- water and alcohol
9. TLC
10. Determination of optical density
11. Refractive index
12. Aflatoxins
13. Limit tests for heavy metals
14. pH estimation

Prepared dosage forms:

1. Solid dosage forms

Rasaushadhi

a) Bhasma and Pishti Pariksha
b) Determination of Particle size
c) Limit tests for heavy metals
d) Determination of moisture content, specific gravity, pH and acid value.

Kasthaushadhi

a. Powders (Churna)

1. Particle size
2. Bulk density
3. Solubility
4. Estimation of Foreign material
5. Microbial load
6. Moisture content

7. Determination of ash value - total, water soluble and acid insoluble ash
8. Solubility - water and alcohol
9. Extract values - water and alcohol
10. TLC
11. Determination of Optical density
12. Refractive Index
13. Aflatoxins
14. Limit tests for Heavy metals
15. pH Value estimation

b. Tablets

1. Uniformity in weight and size
2. Tablet hardness
3. Tablet friability
4. Tablet disintegration
5. Tablet dissolution

c. Semisolid dosage forms

1. Moisture content
2. Sugar content
3. Microbial load

d. Liquids

1. pH value
2. Specific gravity
3. Determination of refractive index
4. Acid value
5. Viscosity
6. Saponification value

7. Iodine value

Note:

- All practicals should be performed in accordance with Authoritative Text Books of Schedule-I of D.C.Act-1940.
- All practicals related to Pharmacopoeial Standards should be performed in accordance with Methods Published in Protocol for testing of ASU Medicines and Laboratory Guidelines for the Analysis of Ayurveda & Siddha Formulations published by Deptt. of AYUSH, Government of India.

Distribution of marks (Practical)

1. Practical Record Book - 10 Marks
2. Practicals related to Preparation of Drugs
   a. Major practical- one - 20 Marks
   b. Minor practical- one - 10 Marks
3. Drug analysis
   a. Major practical- one - 20 Marks
   b. Minor practical- one - 10 Marks
4. Spotting - 10 Marks
5. Viva-voce - 20 Marks

REFERENCE BOOKS:

1. Rasahridaya Tantra
2. Rasarnava
3. Rasaratna Samuccahaya
4. Ayurved Prakasha
5. Rasendrachudamani
6. Rasendra Chintamani
7. Rasatarangini
8. Rasapraksha Sudhakar

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9. Rasamrita
10. Rasa Chandanshu : CCRAS Publication
11. Sharangadhara Samhita
12. Sharangadhara Darpan (BP Pandey)
13. Bhavaprakasha
14. Yoga Ratnakara
15. Bhaishajya Ratnavali
16. Siddha Bhaishajya Manimala
17. Bharat Bhaishajya Ratnakara
18. Rasayoga Sagara
19. Siddha Bhaishajya Manimala
20. Sahasrayoga
21. Siddha Yoga Sangraha – Yadavaji Trikamji Acharya
22. Vaidyaka Paribhasha Pradeepa
23. Ayurvediya Aushadhikarana – Puranik and Dhamanakar
24. Dravyaguna Vijnan Part - 1 and 2 - Yadavji Trikamji
25. Chakradatta - Ratnaprabha, Relevant Parts from Charaka Samhita, Sushruta Samhita, Kashyapa Samhita, Ashtanga Sangraha, Ashtanga Hridaya,
26. Remington: Science and Practice of Pharmacy
27. Theory and Practice of Industrial Pharmacy – Leon Lachman *et al*
28. Clinical Pharmacology, KD Tripathi
29. Clinical Pharmacology, Lawrence Benette
30. Drug Discovery and Evaluation (Pharmacological assays) HG Vogel
31. Pharmacological Basis of therapeutics – Goodman and Gilman
32. Data Base of Medicinal Plants of CCRAS
33. Quality and Standards of Medicinal Plants – ICMR publication
34. Quality Control of Ayurvedic Drugs – PLIM, Gaziabad
35. Ayurvedic Pharmacopeia of India
36. Ayurvedic Formulary of India
37. Indian Pharmacopeia
38. British Pharmacopeia

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39. United States Pharmacopeia
40. Pharmacopeia Codex
41. Current Good Manufacturing Practices
42. Drugs and Cosmetic Act 1940 and Rules 1945 with latest amendments
43. Drugs and Magic remedies (Objectionable advertisement) Act-1954
44. Prevention of Food Adulteration (PFA) act
45. Laws pertaining to Narcotics
46. Factory and Pharmacy Acts
47. Consumer Protection Act -1986
48. Brief information on the peer reviewed journals, official websites and other official search engines along with their links (related with the subject)
49. Rutleys Elements of Mineralogy
50. Bhasma Vigyaniyam
51. Kupipakva Vigyaniyam
52. Anupana Manjari

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Final M.D. Ayurveda

RASA SHASTRA AND BHAISHAJYA KALPANA

Theory – 400 Marks (100 Each)

Practical and Viva-Voce-100 Marks

Paper I **100 Marks**

RASASHASTRA

Part A

1. History and Chronological evolution of Rasashastra, Concept of Raseshwara darshan. Fundamental Principles of Rasashastra, Technical terminologies (Paribhasha) used in Rasa shastra.
2. Detailed knowledge of ancient and contemporary Yantropakarana and their accessories used in aushadhikaran and their contemporary modification such as Yantras, mushas, putas, Koshthis, bhrashtris, muffle furnaces and other heating appliances, ovens, driers etc. used in manufacturing of Rasaushadhis in small scale and large scale, along with their applications.
3. Study of Samskara, Role of Agni (Heat), Jala (Water) and other dravas (Liquids), Kala (Season), Patra (Container) etc. and their significance in Aushadhikarana.
4. Concept of Bhavana, Study of Mardana and its significance and knowledge of ancient and contemporary grinding techniques.
5. Detailed knowledge of different procedures of Shodhana, Jarana, Murchana and Marana, Concept of Puta, definition, types and specifications of different Putas. Significance of different Putas in relation to Bhasmikarana and therapeutic efficacy of dravya under process. Bhasma pariksha vidhi and its significance in relation to contemporary testing procedures. Amritikaran and Lohitikarana.
6. Detailed knowledge of Satva and Druti, Satva shodhan, mrudukaran and Maran of Satva, its significance, in relation to therapeutic efficacy of dravya under process.
7. Concept of Pratinidhi (Substitute) dravya and discussion on controversial drugs.

PART – B

1. Detailed ancient and contemporary knowledge of Parada and its compounds with

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reference to source, occurrence, physico-chemical characterization, graahya-agraahyatva, Parada dosha, Parada gati, Parada shodhan, Study of Ashta sanskara, Ashtadasha sanskara etc., Hingulottha Parada. Concept of Parada jaran, moorcchana, bandhan, pakshaccheda and marana etc. Therapeutic properties and uses of Parada.

2. Detailed ancient and contemporary knowledge with Geochemical / mineralogical / biological identification, source, occurrence, physico-chemical characterization, graahya-agraahytva, shodhan, Maranadi vidhi and therapeutic properties and uses of dravyas etc. included in Maharasa, Uparasa, Sadharana rasa, Dhatu, Upadhatu, Ratna, Uparatna, Visha, Upavisha, Sudha varga, Lavana varga, Kshara varga, Sikata varga and other miscellaneous drugs used in Rasashastra.

3. Detailed knowledge of manufacturing, pharmacopeial standards, storage, shelf life, therapeutic efficacy, dose, anupana, vikarashanti upaya and development of technology with Standard Operating Procedures of processing, standardization, quality control of following Bhasmas and Pishtis

Bhasma – Abhraka Bhasma, Svarnamakshika Bhasma, Kasis Bhasma, Svarna Bhasma, Rajata Bhasma, Tamra Bhasma, Loha Bhasma, Mandur Bhasma, Naga Bhasma, Vanga Bhasma, Yashad Bhasma, Trivanga Bhasma, Pittala, Kamsya and Varthaloha Bhasma, Shankha Bhasma, Shukti Bhasma, Kapardika Bhasma, Godanti Bhasma, Praval Bhasma,Mrigashringa Bhasma, Mayurpiccha Bhasma, Kukkutand twak Bhasma, Hiraka Bhasma, Manikya Bhasma.

Dravaka – Shankha Dravaka

Pishti - Praval pishti, Manikya Pishti, Mukta pishti, Jahara mohara pishti, Trinakanta mani pishti etc.

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4. Detailed knowledge of manufacturing, storage, shelf life, pharmacopeial standards, therapeutic efficacy, dose, anupana and development of technology with Standard Operating Procedures of processing, standardization and quality control of Kharaliya rasa, Parpati, Kupipakva rasa and Pottali rasa.
5. Study of classical texts with respective commentaries and special emphasis on Rasarnava, Rasahridaya tantra,Rasa Ratna Samucchaya, Rasendra Chintamani, Rasendra Chudamani, Rasa Ratnakara, Rasadhyaya, Rasa Kamdhenu, Rasa Chandanshu, Anandkanda, Siddha Bheshaja Manimala, Ayurveda Prakash, Rasatarangini, Bhaishajya Ratnavali, Rasamritam etc. and the books mentioned in the Schedule I of D & C Act – 1940. Relevant portions of Brihatrayi.

Paper II **100 Marks**

BHAISHAJYA KALPANA

Part – A

1. History and chronological evolution of Bhaishajya Kalpana, Concept of Bheshaja and Aushadh, fundamental principles of Bhaishajya kalpana. Technical terminologies (Paribhasha) used in Bhaishajya Kalpana.
2. Classical and Contemporary concepts of collection, Storage, Saviryata Avadhi and Preservation methods of different fresh and dry Aushadhi dravyas and their graahya-agraahyatva. Knowledge about Good collection and storage practices (GCP and GSP) as per WHO and NMPB guidelines.
3. Detailed knowledge of routes of drug administration, Aushadha matra, Posology,

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Anupana, Sahapana, Aushadha Sevana Kala, Sevan Avadhi, Pathya, Apathya.

4. Detailed knowledge of manufacturing, standardization, quality control, pharmacopeial standards, storage, shelf life and development of innovative technology with Standard Operating Procedures of following dosage forms.

   i) Panchavidha Kashaya, Churna, Rasakriya, Ghana, Avaleha, Pramathya, Mantha, Panaka, Sarkara, Kshirapaka, Ushnodaka, Aushadha Siddha Udaka, Arka, Satva, Kshara, Lavana, Masi, Gutika, Vatika, Modaka, Guggulu and Varti etc.

   ii) Sneha Kalpana: Concept of Accha sneha and Sneha pravicharana and Murchhana. Sneha paka, types of sneha paka and Sneha siddhi lakshana, Avartana. Sneha kalpa karmukata (Pharmacokinetics and dynamics of sneha kalpa).Role of sneha in relation to absorption of drug.

   iii) Kritanna and Bheshaja Siddha Anna Kalpana, Shuka and shmbi Dhanya Kalpna, Dugdha, Dadhi and Takra Vikar and Mansarasadi Krutanna Kalpana, Aharopayogi Varga, Concept of medicinal and functional food, dietary supplements and neutraceuticals etc.

   iv) Sandhana kalpana: Madya varga and Shukta varga. Asava yoni. Alcoholic and acidic fermentation. Sandhana kalpa karmukata (Pharmacokinetics and dynamics). Advances in fermentation technology. Knowledge of regulations in relation to alcoholic drug preparations.

   v) Bahya Prayogartha Kalpana: Lepa, Upanaha, Udvartan, Avachurnana / Avadhulana, Abhyanga, Dhupana, Malahara.

   vi) Mukha, karna, Nasa, Netropacharartha Kalpana:

   vii) Basti Kalpana: Basti Yantra Nirmana, Types of basti. Anuvasana and Asthapana basti. Karma, Kala and Yoga basti etc. Basti Kalpa (Madhutailika, Piccha basti etc.), Comparison of Asthapana and Anuvasana basti with evacuation and

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retention enema.

Part – B

All the following procedures are to be studied in relevance to Ayurvedic Bhaishajya Kalpas.

1. Methods of Expression and Extraction: Maceration, percolation, distillation, infusion and decoction. Knowledge about Filtration techniques.
2. Drying, open and closed air drying, freeze drying, vaccum drying and other drying methods pharmaceutical excipients.
3. **Liquids:** Clarified liquid, Syrup, Elixir.
4. **Solid dosage Forms: Powders:** Size reduction, Separation techniques, particle size determination, Principles of mixing.

   Tablets: Methods of tableting, Suppositories, Pessaries and Capsules, Sustained release dosage forms.
5. **Semisolid dosage forms-** Emulsions, Suspensions, Creams and Ointments, Sterilization of Ophthalmic preparations.
6. An introduction to various cosmetic preparations such as Toiletories, Shapoo, Shaving creams, Hair oils,Face Powders (Talcum powders). Vanishing creams, lotions and Moisturisers, Face pack, Deodourents and Perfumes.
7. Study of classical texts with special emphasis on Chakradatta, Sharangadhara Samhita, Bhaishajya Ratnavali, Bhava Prakasha, Yogaratnakara, relevant portions of Brihatrayi, Ayurvedic Pharmacopeia of India, Ayurvedic Formulary of India.

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Paper III **100 Marks**

RASA CHIKITSA & AUSHADHA YOGA VIGYANA

PART – A

1. Rasachikitsa, Kshetrikaran, Rasajirna, Lohajirna, Ashuddha, Apakva, Avidhi Rasadravya Sevanajanya Vikara evam Vikara shanti upaya (Management and knowledge of untoward effects of inappropriately processed and administered drugs).
2. Detailed knowledge of Aushadhi patha Nischiti and Sanyojan (Formulation design and composition), Dose, Anupana and Method of administration, therapeutic efficacy and uses (indications and contra- indications), probable mode of action etc. of the following Aushadhi Yogas
    a. **Kharaliya Rasa:** Shwasa kuthara Rasa, Tribhuvana kirti Rasa, Higuleshwara Rasa, Ananda bhairava Rasa, Maha Lakshmivilasa Rasa, Vasnata kusumakara Rasa, Vasanta malti Rasa, Brihat vata chintamani Rasa, Laghu suta shekhar Rasa, Suta Shekhara Rasa, Ram ban Rasa, Chandra Kala Rasa, Yogendra Rasa, Hridyarnava rasa, Grahani kapata Rasa, Garbha pala Rasa, Jalodarari Rasa, Mrityunjaya Rasa, Madhumalini vasanta Rasa, Arsha kuthara Rasa, Krimi mudgara Rasa, Suchika bharana Rasa, Tri netra Rasa, Smruti sagara Rasa, Vata gajankusha Rasa, Agni kumar Rasa, Ekangavir Rasa, Kama dugha Rasa, Purna chandrodaya Rasa, Pratap lankeshwara Rasa, Maha vata vidhwansaka Rasa, Kasturi bhairava Rasa, Ashwa kanchuki Rasa, Gulma kuthara Rasa, Maha

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jwarankusha Rasa, Chandra mrita Rasa, Kapha ketu Rasa, Prabhakara Vati, Pravala Panchamrita, Gandhaka Rasayana, Chaturbhuj rasa, Navajivan rasa, Shonitargal rasa, Raktapitta kulakandan rasa, Amavatari Rasa, Kravyada Rasa, Garbha chintamani Rasa, Chintamani Rasa, Trilokya chintamani Rasa, Pradarantaka Rasa, Vangeshwara Rasa, Brihat Vangeshwara Rasa, Shwasakasa Chintamani Rasa, Arogya vardhini Vati, Chandra prabha Vati, Agni tundi vati, Shankha Vati.

b. **Kupipakva Rasa:** Rasa Sindura, Makaradhwaja, Sidha makaradhwaja, Samira pannaga Swarnarajvangeshvar, Malla sindura, Rasa karpura, Rasa pushpa, Manikya Rasa.
c. **Parpati Rasa:** Rasa Parpati, Loha Parpati, Tamra Parpati, Suwarna Parpati, Gagana Parpati, Vijay Parpati, Panchamrit Parpati, Shwet Parpati, Bola Parpati
d. **Pottali Rasa:** Rasagarbha pottali, Hemagarbha Pottali, Mallagarbha pottali, Hiranyagarbha pottali, Shankagarbha pottali, Lokanatha rasa, Mriganka Pottali
e. **Loha evam Mandura Kalpa:** Ayaskriti, Loha Rasayana, Amla pittantaka loha, Chandanadi loha, Dhatri loha, Navayasa loha, Putapakva vishama jwarantaka loha, Shilajatwadi loha, Tapyadi loha, Saptamrita loha, Pradarantaka loha, Rohitaka loha. Punarnava Mandura, Shatavari Mandura, Triphala Mandura, Mandura Vataka etc.
f. Knowledge of Essential Ayurvedic drug list as prescribed by Dep. Of AYUSH (Got. Of India) and its significance.

Part B

Detailed knowledge of Aushadhi patha Nischiti and sanyojan (Formulation designing and

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composition), dose, anupana and method of administration, therapeutic efficacy and uses (indications and contra-indications), probable mode of action etc. of the following Aushadhi Yogas

a. **Panchavidha Kashayas and their Upakalpa:** Ardraka swarasa, Tulasi swarasa, Vasa putapaka, Nimba kalka, Rasona kalka, Kulattha kwath, Punarnavasthaka kwatha, Rasna saptaka kwatha, Dhanyak hima, Sarivadi hima, Panchakola phanta, Tandulodaka, Mustadi pramathya, Kharjuradi mantha, Shadanga paniya, Laksha rasa, Arjuna kshirapaka, Rasona kshirapaka, Chincha panaka, Candana panaka, Banapsha sharkara, Nimbu sharkara, Amrita satva, Ardraka satva, Ajamoda arka, Yavanyadi arka.
b. **Kritanna and Bheshaja Siddha Ahara Kalpana:** Yavagu, (Krita and Akrita), Ashtaguna manda, Laja manda, Peya, Vilepi, Krishara, Yusha, Mudga yusha, Kulattha yusha, Saptamushtika yusha, Khada, Kambalika, Raga, Shadava, Mamsarasa, Veshavara, Dugdha Vikara – Piyush, Kilata, Kshirashka, Hyaiyangavina, Morata, Santanika, Dadhi and Dadhi Vikara, Katvar Dadhi, Dadhi Mastu, Takra, Ghola, Udasvita, Mathita, Chhacchika etc.
c. **Churna:** Sitopaladi Churna, Talisadi Churna, Triphala Churna, Hingvashtaka Churna, Avipattikara Churna, Swadishta Virechana Churna, Bhaskar Lavana Churna, Sudarshana Churna, Maha Sudarshana Churna, Gandharva Haritaki Churna, Pushyanuga Churna, Ajamodadi Churna, Hingvadi Churna, Eladi Churna, Dadimashtaka Churna, Trikatu Churna, Vaishwanara Churna, Gangadhara Churna, Jati phaladi Churna, Narayana Churna etc.
d. **Gutika:** Arogya vardhani vati, Chandra prabha vati, Chitrakadi Gutika, Sanjivani Vati, Lasunadi vati, Lavangadi Vati, Vyoshadi vati, Khadiradi Vati, Kankayana Vati, Abhayadi modaka, Marichyadi gutika, Amalakyadi gutika, Samshamini Vati, Kutaja Ghana vati,

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Shiva Gutika, Eladi Vati, Kasturyadi Gutika, Arshoghni Vati.

e. **Guggulu:** Yogaraja Guggulu, Maha Yogaraja Guggulu, Trayodashanga Guggulu, Kanchanara Guggulu, Rasnadi Guggulu, Triphala Guggulu, Simhanada Guggulu, Gokshuradi Guggulu, Kaishora Guggulu, Panchatikta Guggulu, Amritadi Guggulu, Vatari Guggulu, Lakshadi Guggulu, Abha Guggulu, Navaka Guggulu,Nava Karshika Guggulu.

f. **Sneha Kalpa**

g. **Sneha Moorchhana –** Ghrita Murchana, Taila Murchhana

h. **Siddha Ghrita -** Shatavari Ghrita, Jatyadi Ghrita, Phala Ghrita, Dadimadi Ghrita, Kshirashatpala Ghrita, Mahatriphala Ghrita, Dhanvantari Ghrita, Amritaprasha Ghrita, Kalyanaka Ghrita, Brahmi Ghrita, Changeri Ghrita, Panchatikta Ghrita, Sukumara Ghrita, Panchagavya Ghrita.

i. **Siddha Taila -** Maha Narayana Taila, Maha Masha Taila, Baja Taila, Nirgundi Taila, Shadbindu Taila, Vishagarbha Taila, Sahacharadi Taila, Jatyadi Taila, Apamarga Kshara Taila, Tuvaraka Taila, Kshirabala Taila (Avartita), Lakshadi Taila, Anu Taila, Kumkumadi Taila, Hingutriguna Taila, Kottumchukadi Taila, Prasarinyadi Taila, Dhanwantari Taila, Balashwagandhadi Talia, Balaguduchyadi Taila, Nilibhringyadi Taila, BrihadSaindhavadi Taila, Irimedadi Taila, Chandanadi Taila, Panchaguna taila, Arka Taila, Pinda Taila, Kasisadya Taila.

j. **Rasakriya, Avaleha, Khanda etc.:** Darvi Rasakriya, Vasa Avaleha, Brahma rasayana, Chyavanprasha Avaleha, Kushmanda Avaleha, Dadima Avaleha, Bilvadi avaleha, Kantakaryavaleha, Haridra Khanda, Narikela Khanda, Saubhagya shunthi paka, Amrita Bhallataka, Kamsa Haritaki, Chitraka Haritaki, Vyaghri Haritaki, Bahushala Guda, Kalyana Guda.

k. **Sandhana Kalpa:** Lodhrasava, Kumaryasava, Ushirasava, Chandanasava, Kanakasava,

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Sarivadyasava, Pippalyasava, Lohasava, Vasakasava, Kutajarishta, Draksharishta, Raktamitrarka, Dashamularishta, Abhayarishta, Amritarishta, Ashokarishta, Sarasvatarishta, Arjunarishta, Khadirarishta, Ashwagandha Arishta, Vidangarishta, Takrarishta, Drakshasava, Mahadrakshasava, Mritasanjivani sura, Maireya, Varuni, Sidhu, Kanji, Dhanyamla, Madhu Shukta, Pindasava.

l. **Anya Kalpa:** Phala varti, Chandrodaya varti, Arka lavana, Narikela lavana, Triphala masi, Apamarga kshara, Snuhi kshara, Ksharasutra, Atasi upanaha, Sarjarasa malahara, Gandhaka malahara, Sindhuradi Malahara, Shatadhouta Ghrita, Sahasra Dhouta Ghrita, Siktha taila, Dashanga lepa, Doshaghna lepa, Bhallataka taila patina, Jyotishmati Taila, Bakuchi Taila, Dashanga dhupa, Arshoghna dhupa, Nishadi Netra bindu, Madhutailika Basti, Piccha Basti, Yapana Basti.

PAPER – IV **100 Marks**

PHARMACOLOGY AND PHARMACY MANAGEMENT

PART – A

1. General Pharmacology:
    a. Principles of Pharmacology, Pharmcodynamics & Pharmacokinetics: Absorption, distribution, Metabolism & excretion, mechanism of action, dose determination and dose response, structure activity relationship.
    b. Routes of drug administration

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c. Factors modifying drug effect, Bioavailability and Bioequivalence, drug interactions, Adverse drug reaction and Drug toxicity.

d. Preclinical evaluation: Experimental pharmacology [Bioassay, In vitro, In vivo, Cell line studies], Animal ethics.

2. Clinical pharmacology: Evaluation of New Chemical Entity – Phases and methods of clinical research. Ethics involved in human research.
3. Elemental constituents of human body such as Iron, Copper, Zinc, calcium, Mangnese etc. and its physiological importance. Deficiencies and excess of various elements.
4. Toxicity of heavy metals and chelation therapy.
5. Knowledge of toxicity and pharmacological activities of herbo-mineral compounds.
6. Detailed knowledge of Pharmacovigilance – National and International Scenario. Pharmacovigilance of Ayurvedic Drugs.

Part B

1. Scope and evolution of of pharmacy. Information resources in pharmacy and pharmaceutical Science.
2. Pharmaceutical formulation designing and dosage form design (Pre-formulation).
3. Packaging materials and Labeling.
4. Management of pharmacy, Store and inventory management, Personnel management, Good Manufacturing Practices related to Ayurvedic drug industry.
5. Pharmaceutical Marketing, Product release and withdrawals.
6. Hospital, Dispencing and Community pharmacy.
7. Patenting and Intellectual Property Rights.
8. Laws Governing Ayurvedic drugs.

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i. Relevant regulatory provisions of Ayurvedic drugs in Drug and Cosmetics Act – 1940 and Rules – 1945
ii. Laws pertaining to Drugs and Magic remedies (Objectionable Advertisement) Act – 1954.
iii. Prevention of Food Adulteration (PFA) act.
iv. Food Standards and Safety Act – 2006
v. Laws pertaining to Narcotics
vi. Factory and Pharmacy Acts
vii. Consumer Protection Act – 1986
viii. Knowledge of Good Clinical Practices and Inspection Manual prescribed by Dept. of AUYUSH, Govt. of India.

9. Regulatory Affairs related to International Trade and Practices of Ayurvedic Drugs.
10. Introduction to Ayurvedic Pharmacoepia of India, Ayurvedic Formulary of India.
11. Introduction to Indian Pharmacoepia, British and United States Pharmacoepia, Pharmacoepial Codex.
12. Introduction to Traditional Knowledge Digital Library

Practicals:-

- Minimum 150 Practicals are to be performed covering all the dosage forms.
- Educational Visits to minimum five (5) GMP approved Ayurvedic Pharmacies.
- Posting in R & D / Production unit in GMP certified Ayurvedic Pharmacy.
- Minimum attendance in three National Conferences within three academic years.

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- Minimum 10 clinical cases using different dosage forms are to be studied and recorded for efficacy and ADRs (if any).
- Minimum one research paper on the core contributory work of dissertation published or accepted in peer reviewed, indexed journal.
- Examinee has to submit supporting documents in relation to above mentioned academic activities at the time of Practical examination.

Pattern of Practical Examination **100 Marks**

Duration of the practical: 2 days

1. **Identification of the specimen:** **10 Marks**
2. **Drug Processing** **30 Marks**
   i. Major Practicals: 2 (1 Rasashastra and 1 Bhaishajya Kalpana). 10x2=20
   ii. Minor Practicals: 2 (1 Rasashastra and 1 Bhaishajya Kalpana). 5x2=10
3. **Drug testing and Analysis** **10 Marks**
   i. Rasaushadhi - 1
   ii. Kashthaushadhi – 1
4. **Power Point Presentation** on dissertation work: 15 Minutes - **10 Marks**
5. **A Demo Lecture** on any subject topic: 10 Minutes. - **10 Marks**
6. **Documentation** **- 15 Marks**
   i. Journals (Practical Records) of minimum 150 practicals from Rasa Shastra, Bhaishajya Kalpana and Drug Analysis.

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ii. Reports of the Visits.

iii. Case Records

7. Viva Voce examination **15 Marks**

Reference Books:-

1. Rasahridaya Tantra
2. Rasarnava
3. Rasaratna Samuccahaya
4. Ayurved Prakasha
5. Rasendrachudamani
6. Rasendra Chintamani
7. Rasatarangini
8. Rasaprakasha Sudhakar
9. Rasamitra
10. Rasa Chananshu : CCRAS Publication
11. Sharangadhara Samhita
12. Sharangadhara Darpan (BP Pandey)
13. Bhavaprakasha
14. Yoga Ratnakara
15. Bhaishajya Ratnavali
16. Siddha Bhaishajya Manimala
17. Ayurvediya Aushadhikarana – Puranik and Dhamanakar

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18. Bharat Bhaishajya Ratnakara
19. Rasayoga Sagara
20. Siddha Bhaishajya Manimala
21. Siddha Yoga Sangraha – Yadavji Trikamji Acharya
22. Sahasrayoga
23. Vaidyaka Paribhasha Pradeepa
24. Dravyaguna Vijnan Part- 1 and 2 - Yadavji Trikamji
25. Chakradatta – Ratnaprabha,
26. Relevant Parts from Charaka Samhita, Sushruta Samhita, Kashyapa Samhita, Ashtana Sangraha, Ashtanga Hridaya,
27. Remington: Science and Practice of Pharmacy
28. Theory and Practice of Industrial Pharmacy- Leon Lachman et al
29. Clincal Pharmacology, KD Tripathi
30. Clincal Pharmacology, Lawrence Benette
31. Drug Discovery and Evaluation (Pharmacological assays) HG Vogel
32. Pharmacological Basis of therapeutics – Goodman and Gliman
33. Data Base of Medicinl Plants of CCRAS
34. Quality and Standards of Medicinl Plants – ICMR publication
35. Quality control of Ayurvedic drugs – PLIM, Gaziabad
36. Ayurvedic Pharmacopeia of India
37. Ayurvedic Formulary of India
38. Indian Pharmacopeia
39. British Pharmacopeia

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40. United States Pharmacopeia
41. Pharmacopeia Codex
42. Current Good Manufacturing Practices
43. Drugs and Cosmetic Act 1940 and Rules 1945 with latest amendments
44. Drugs and Magic remedies (Objectionable advertisement) Act – 1954
45. Prevention of Food Adulteration (PFA) act
46. Laws pertaining to Narcotics
47. Factory and Pharmacy Acts
48. Consumer Protection Act – 1986
49. Brief information on the peer reviewed journals, official websites and other official search engines along with their links (related with the subject)
50. Rutleys Elements of Mineralogy
51. Bhasma Vigyaniyam
52. Kupipakva Vigyaniyam
53. Anupana Manjari

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2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

Given under Clasue No. 2.10

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

Given under Clasue No. 2.10

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2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

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8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.

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17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

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1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha

ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra

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10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

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3 EXAMINATIONS

3.1 **Eligibility to appear for examinations [including Supplementary]**

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 **Schedule of Regular/Supplementary exams**

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

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I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

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1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.
2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.
3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.
The pattern is long essay for 20 marks -one question
Short essay 10 marks - Eight questions
Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

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Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

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Model Question Paper

PG Ayurveda Degree Preliminary examination

(Rasashastra and BhaishajyaKalpana)

Maulikasidhanta

Time 3 Hours Maximum Marks : 100

Answer all questions

Essay (20)

1) Write the concept and relevance of the classification of Rasaushadha (Raw drugs and finished products)

Short Essay 8 X 10 = 80

2) Write in detail about apakwadhatubhasmasevanadosha
3) Discuss the significance of aushadhasevanakala and prayogamarga
4) Critically evaluate the role of Sharngadharasamhita in the development of Bhaishajyakalpana
5) Write the principle of chromatographic techniques , compare various chromatographic techniques and write its significance in Ayurvedic drug standardization
6) What are the scientific steps involved in the development of a new proprietary ayurvedic medicine
7) Write various methods of gutikanirmana with suitable examples , write quality control parameters for gutika
8) Write down the salient features of GMP
9) Explain the significance of Paribhasha in Rasashastra and Bhaishajyakalpana

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Model Question Paper

PG Ayurveda Degree Preliminary examination –Model Question

(Rasashastra and Bhaishajya Kalpana)

Maulika sidhanta

Time 3 Hours Maximum Marks : 100

Answer all questions

Essay (20)

10) Write the concept and relevance of the classification of Rasaushadha (Raw drugs and finished products)

Short Essay 8 X 10 = 80

11) Write in detail about apakwa dhatu bhasma sevana dosha
12) Discuss the significance of aushadha sevana kala and prayoga marga
13) Critically evaluate the role of Sharngadhara samhita in the development of Bhaishajyakalpana
14) Write the principle of chromatographic techniques , compare various chromatographic techniques and write its significance in Ayurvedic drug standardization
15) What are the scientific steps involved in the development of a new proprietary ayurvedic medicine

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16) Write various methods of gutika nirmana with suitable examples , write quality control parameters for gutika
17) Write down the salient features of GMP
18) Explain the significance of Paribhasha in Rasashastra and Bhaishajya kalpana

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Final year PG Ayurveda Degree examination –Model Question

(Rasashastra and Bhaishajya Kalpana)

Paper I Rasashastra

Time 3 Hours Maximum Marks : 100

Answer all questions

Essay (20)

1) Write down the geochemical/Mineralogical/biological identification and grahya lakshanas of Maharasa, uparasa & Sadharana rasa dravyas ?

Short Essay 8 X 10 = 80

2) Write the concept of Parada Murchana , Differentiate the methods of Murchana with illustrations.
3) Write the concept of Raseswara Darshana, explain the chronological evolution of Rasashastra

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4) Write in detail regarding various Yantras used for shodhana of Rasadravyas
5) Write the SOP of Processing ,Standardization and quality control of Abhraka bhasma
6) Explain Trividha loha paka , give two examples of Lauha kalpa
7) Discuss the concept and relevance of Amruteekarana ,Write various methods of Amrueekarana for any one drug
8) Write a critical review on Anandakanda
9) Discuss the current methods of incineration and standardization of different Putas

Final year PG Ayurveda Degree examination –Model Question

(Rasashastra and Bhaishajya Kalpana)

Paper II Bhaishajya kalpana

Time 3 Hours Maximum Marks : 100

Answer all questions

Essay (20)

1) Write the classical and contemporary methods of collection, storage and preservation of fresh and dry aushadhi dravyas and write down the steps to improve the saveeryta avadhi of ayurvedic medicines

Short Essay 8 X 10 = 80

2) Write down the considerations in Aushadha matra and pathya apathyas during Aushadha seva
3) Discuss the development of innovative technologies in the manufacture and standardization of Kwatha

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4) What is Quality assurance? Discuss various steps involved in the quality assurance of ayurvedic products
5) Write in detail about sandhana kalpana, discuss the application of fermentation technology in Asava Arishta Nirmana
6) Discuss various methods of expression and extraction used in the preparation of ayurvedic dosage forms
7) Write in detail ,various precautions and measures to be taken while preparing sneha
8) Write the size reduction and size separation techniques used in ayurvedic pharmaceutical industry by mentioning relevant instrumentation
9) Discuss the unique role of Bhavaprakasha in the advancement of Rasashastra and Bhaishajya Kalpana

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Final year PG Ayurveda Degree examination –Model Question

(Rasashastra and Bhaishajya Kalpana)

Paper III - Rasachikitsa and aushadha yoga vigyana

Time 3 Hours Maximum Marks : 100

Answer all questions

Essay (20)

1) Discuss in detail various precautions and measures to be taken while preparing and prescribing Rasaushadi, for preventing potential complications

Short Essay 8 X 10 = 80

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2) Write the formulation design, composition and method of preparation of Vasantakusumakara Rasa
3) Write the method of preparation, dose , various anupanas and related indications of Rasasindura
4) Discuss various methods of Pottali nirmana, write the method of preparation and indication of Lokanatha rasa.
5) Compare various therapeutic applications of Lauha and Mandura kalpa taking suitable examples
6) Write down the ingredients and indications of Sudarshanachurna , discuss the probable mode of action in various conditions
7) Write the method of preparation of Kaisora guggulu with its dose and various anupanas related to different indications
8) Discuss the peculiarity in the preparation of Anutaila ,Write its therapeutic utility in Swasta and Athura
9) List out any three formulations that can be prescribed in Amavata , Substantiate your answer by discussing the probable mode of action of the drugs

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Final year PG Ayurveda Degree examination –Model Question

(Rasashastra and Bhaishajya Kalpana)

Paper IV - Pharmacology and Pharmacy Management

Time 3 Hours Maximum Marks : 100

Answer all questions

Essay (20)

1) Explain in detail the factors responsible for absorption , distribution and excretion of drugs, how do these factors affect the determination of dose

Short Essay 8 X 10 = 80

2) Write down the phases and methods for the evaluation of a new chemical entity
3) Discuss the conditions occurring in defeciency and excess of iron, copper and zinc in human body
4) What are the probable complications of improperly prepared and prescribed herbominerals containing Lead and mercury, discuss about its management.
5) Discuss about an effective program for the prevention of ADR of ASU drugs
6) Explain in detail the characteristics of an ideal packaging material, suggest different packaging materials for Ayurvedic drugs
7) Explain in detail about the considerations in dosage form design.
8) Write the general guide lines for setting an Ayurvedic manufacturing unit
9) What are the different aspects of patenting and IPR, what is the relevance of IPR in protecting traditional knowledge.

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3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

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1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

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(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

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(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the

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dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

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1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

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Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome

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5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman

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2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

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REGULATIONS 2016

SYLLABUS

For Courses affiliated to the

Kerala University of Health Sciences

Thrissur-680596

Ayurveda Vachaspati – Swasthavritta (M.D. (Ayurveda) Social and Preventive Medicine)

(2016-17 Academic year onwards)

Course Code 256

2016

2 COURSE CONTENT

2.1 Title of Course & description

Ayurveda Vachaspati – Swasthavritta (M.D. (Ayurveda)- Social and Preventive Medicine)

2.2 Objectives

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as

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may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, and laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Subjects

Given under curriculum clause no.2.10

The concept of health care counseling shall be incorporated in all relevant areas.

2.7 Total number of hours:

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by*

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the CCIM)

M.D./M.S.-AYURVEDA

PRELIMINARY PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks Teaching Hours:200 Hours

PART-A

60 Marks

RESEARCH METHODOLOGY Teaching Hours: 120

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda

2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.

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i. Generalization and interpretation, evaluation and assessment of hypothesis.

j. Ethical aspects related to human and animal experimentation.

k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.

4. Scientific writing and publication skill

a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.

b. Different types of referencing and bibliography.

c. Thesis/Dissertation: contents and structure

d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

4. Classical Methods of Research.

Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati Aushadhi-yog Parikshana Paddhati

Swastha, Atura Pariksha

Paddhati Dashvidha

Parikshya Bhava

Tadvidya sambhasha, vadmarga and tantrayukti

5. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health

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sciences.

6. Different fields of Research in Ayurveda Fundamental research on concepts of Ayurveda

a. Panchamahabhuta and tridosha.

b. Concepts of rasa, guna, virya, vipak, prabhav and karma

c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

7. Literary Research-
Introduction to manuscriptology: Definition and scope.
Collection,conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors, concepts and development of particular body of knowledge.

8. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

9. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

10. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process

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through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and network physiology

-Brief introduction to the process of Drug

development. 12.Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies Longitudinal & Cross sectional studies Prospective & Retrospectives studies Cohort studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.

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Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete

4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:

   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance

9. Univariate analysis of categorical data:

   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals

10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:

    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple

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13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

I. RESEARCH METHODOLOGY **Teaching Hours 120**

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia.
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15.

Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

REFERENCE BOOKS:-

Pharmacognosy:

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Pharmaceutical chemistry, quality control and drug standardization:

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7. Khopkar, S. M. Analytical Chemistry, New Age International Publishers , 3 rd edition
8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
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10. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S. Shah Prakashan, Ahmedabad.
11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO- Geneva.
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13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
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15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008). Extraction Technologies for Medicinal and Aromatic

Plants - INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY-Trieste,

Biochemistry and Laboratory techniques:

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2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
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12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

Research methodology:

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University Press.
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Medicine. (3rd ed)
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of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

Drug research and development:

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2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061

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9. OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring, 1998.http://www.oecd.org/document/63/0,2340,en_2649_34381_2346175_1_1_1_1,00.html
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Guideline on Non-clinical Safety Studies for t he conduct of Human Clinical Trials for Pharmaceuticals M3 (R1).

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14- Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondicherry.*

Biotechnology and Bio-informatics:

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Medical Statistics:

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15. Suhas Kumar Shetty- Medical statistics made easy

M.D.-AYURVEDA PRELIMINARY

SWASTHAVRITTA & YOGA

(Preventive, Social Medicine & Yoga)

PAPER-II **Theory 100 marks**

PART A **50 marks**

1. Importance and relevance of Swasthavritta and Community Medicine. History of community medicine.
2. Concept of health and disease as per Ayurveda and Modern Medicine. Various definitions and dimensions of health as per Ayurveda and World Health Organization.
3. Relevance of Dinacharya, Ratricharya and Ritucharya in Health Promotion.
4. Basic concept of Vega. Concept of Adharaniya and Dharaniya Vega in health promotion and prevention of diseases with examples.
5. Concept of Trayopastambha in health promotion and prevention of diseases.
6. Concept of nutrition as per Ayurveda and modern science.
7. Concept of Vyadhikshamatva. Concept of Bala and Ojas in relation to health.
8. Role of Panchakarma in preventive medicine.
9. Role of Rasayana in promotion of health and prevention of diseases. Scope of Rasayana in Geriatrics and Reproductive & Child Health.
10. The concept of Ashtanga Yoga and its relation to health. Concept of Moksha.
11. Basic concepts of Nisargopachara including Panchabhautika Chikitsa.

PART B **50 marks**

1. Concept of Janapadodhwamsa and tools of its prevention.
2. Principles of Epidemiology. Definitions in infectious disease epidemiology.
3. Concept of disease control and intervention strategies.
4. Levels of disease prevention
5. Basic principles of Samkramak Vikara- causes, modes of disease transmission,

epidemiological triad

6. Principles of Health Education
7. Environmental Health- concept of water, soil and air purification as per Ayurveda and modern science.
8. Introduction to Meteorology
9. Role of Swasthavritta in maternal and child health care.
10. National Population Policy, National Health Policy as per Alma Ata Declaration and Role of Ayurveda therein.
11. Role of Swasthavritta in communicable and non-comminicable diseases and life style disorders.
12. Biomedical waste management.
13. National health programmes.

PRACTICAL **100 marks**

Contents:

1. Duty in OPD and IPD with regard to Pathyapathya, Yoga and Nisargopachar
2. Preparation of different Kritanna Kalpana
3. Practice of the following

A. Pratimarsha Nasya
B. Anjana
C. Kavala and Gandusha
D. Abhyanga
E. Udvartana
F. Prayogika Dhoomapana
G. Matra basti

4. Health awareness lectures to the community (minimum 5)
5. Participation in observance of National & International days related to health.

6. Proficiency in performing the following Asanas

StandingPostures-

Ardhakatichakrasana,Padahastasana, Ardhachakrasana,Trikonasana.

Sitting postures –

Swasthika, Gomukha, Padmasana, Vajrasana, Bhadrasana, shashankasana, Ushtrasana, Pashchimottanasana, Suptavajrasana, Ardhamatsyendrasana, Siddhasana.

Supine Postures-

Pavanamuktasana, Sarvangasana, Matsyasana, Halasana, Chakrasana, Shavasana

Pronepostures-

a. Bhujangasana,Shalbhasana,Dhanurasana,Makarasana.

Distribution of marks (Practical)

Record	20
Long Case	30
Short Case	10
Viva	25
Medical Procedure/Lab works	15
Total	**100**

REFERENCE BOOKS:

1. Relevant portions of Charak, Sushruta, Vagbhata (AshtangHrudaya), Ashtang Samgraha, Sarangadhara, Bhavaprakasha, Madhavanidan&Yogaratnakara, Bhela Samhita with the respective commentaries
2. Swasthavritta Samuchaya -VaidyaPtRajesvarDuttaShastri
3. Swasthya Vignyana-Dr.B.G.Ghanekarshastri
4. Prakritika Chikitsa -Kedarnath Gupta
5. Reddy's Comprehensive Guide to Swasthavritta -Dr.P.Sudhakar Reddy
6. Swastha Vigyan -Dr.MukundswaroopVerma
7. Ayurvediya Hitopdesh -Vd.RanjitRai Desai
8. Yoga and Ayurveda -Dr.RajkumarJain
9. Swasthvritta Vigyan-Dr.Ramharsha Singh.
10. Swasthvrittam - Dr.BramhanandTripathi
11. Ayurvediya Swasthvrittam - Vd.Jalukar
12. Hathayog Pradipika - SwatmaramYogendra (Kaivalyadhama)
13. YogikYog Paddhati - BharatiyaprakrutikChikitsaPadhat
14. Yogik Chikitsa - ShriKedarnath Gupta
15. Prakrutik Chikitsa Vigyan - Verma
16. Janasankhyashikshasidhanta evam Upadesa - S.C.Seel
17. Swasthvritta - Dr.Shivkumar Gaud
18. Health and Family Welfare - T.L.Devra
19. SachitraYogasan Darshika - Dr.IndramohanJha
20. Preventive and Social medicine - J.K.Park
21. Yogadeepika - Shri. B.K.S. Iyengar
22. Swasthavritta - Vd.Sakad
23. Positive Health - Dr.L.P.Gupta
24. Biogenic Secretes of Food In Ayurveda - Dr.L.P.Gupta

25. Yoga and Yogikchikitsa - Ramharsha Singh
26. The Foundation of Contempary Yoga - R.H.Singh
27. Yogasidhanta evum Sadhna - H.S.Datar
28. Patanjal Yoga Sutra - Maharshi Patanjali, Karambelkar
29. Prakrutik Chikitsa Vidhi - Sharan Prasad
30. Text book of Swasthavritta - Dr.Ranade, Dr.Bobade, Dr.Deshpande
31. Gherand Samhita
32. Bio-Statistics - B.K. Mahajan
33. Swasthavritta Vidnyan - Dr.Mangala Gauri
34. Community Medicine - Baride and Kulkarni.
35. Light on Yoga - Shri. B.K.S. Iyengar
36. Light on Pranayama - Shri. B.K.S. Iyengar
37. Light on Patanjala Yogasutra - Shri. B.K.S. Iyengar
38. Shiva Samhita - Kaivalyadhama
39. Gheranda Samhita - Kaivlyadhama
40. Swasthavritta Vigyan - Vd. Patrikar Vijay
41. Swasthavritta - Vd Yashwant Patil and Vd. Vhawal
42. Food and Nutrition - Swaminathan
43. Preventive and Social Medicine - Mahajan
44. Preventive and Social Medicine - B.N.Ghosh
45. Preventive and Social Medicine - Gupta
46. Yoga and Nisargopachar - Vd. Prama Joshi

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7. SWASTHAVRITTA

PAPER I VAIYAKTIKA SWASTHAVRITTAM SADVRITTAM CHA Marks 100

1. Concept of holistic health according to Ayurveda.

2. Spectrum of health, Iceberg phenomenon of diseases, dimensions ofhealth.
3. Dinacharya – Detailed accounts by Charaka, Sushruta, Vagbhata and Bhavamishra.
4. Probable Physiologic effect of Dinacharya procedures.
5. Ratricharya – Bhavamishra and other classics.
6. Day and night pattern in various countries.
7. Ritucharya – Classical description by Charaka, Sushruta, Vagbhata, BhelaSamhita and Bhavamishra.
8. Ritus prevalent in various Indian states.
9. Ritu pattern in various countries of the world.
10. Shodhana Schedule for Ritusandhis.
11. Concept of Vegas, types and the physiology behind each vega and vegadharana.
12. Ahara – Classical food items in Charaka, Sushruta, Vagbhata and Sharangadhara.
13. Aharavargas and comparison with todays' food items.
14. Staple diet of various States of India.
15. Staple diet of various countries in correlation with their climate.
16. Principles of dietetics. Balanced diet for healthy adult, adolescent, elderly people, pregnant ladies and lactating mothers.
17. Food intervention in malnutrition, under nutrition and over nutrition.
18. Rules of food intake accccording to Charaka, Sushruta and Vagbhata.
19. Pros and Cons of vegetarian and Non vegetarian foods.
20. Viruddhahara – Classical and modern day examples.
21. Sadvritta – Compare Charaka, Sushruta and Vagbhata.
22. Prajnaparadha – Causes, Effects and solution.
23. AcharaRasayana, Nityarasayana.
24. Rasayana procedures for Swastha
25. Vajeekarana for Swastha.
26. Mental Health and the role of Ayurveda in it.
27. Vyadhikshamatva – Modern and Ayurvedic concepts.
28. Principles of Health Education.
29. Genetics in Ayurveda and Modern Science

PAPER II SAMAJIKA SWASTHAVRITTAM (COMMUNITY HEALTH) Marks 100

1. Concept of community health.
2. Concept of Prevention according to Ayurveda.
3. Concept of prevention according to Modern medicine. Levels of prevention. Stages of intervention.
4. Web of causation of diseases, Multifactorial causation.
5. Natural History of diseases.
6. Ecology and community health.
7. Disinfection practices for the community – Modern and Ayurvedic.
8. Immunization programmes. Possible contribution of Ayurveda.
9. Environment and community health (Bhumi, Jala, Vayu, Shuddhikarana ,Prakasha,Shabda, Vikirana)
10. Housing –W.H.O Standards. Design of Aaturalaya(hospital), Sutikagara, Kumaragara, Panchakarmagara and Mahanasa (Kitchen)
11. Disposal of Wastes- Refuse, Sewage. Methods of Sewage disposal in sewered and unsewered areas.
12. Occupational Health. Ergonomics. Role of Ayurveda in ESI.
13. Medical Entomology– Arthropods of Medical Importance and their control measures.
14. Knowledge of parasites in relation to communicable diseases.
15. School Health Services and possible contribution of Ayurveda.
16. Demography and Family Planning.
17. Family Welfare Programme and the role of Ayurveda in it.
18. Old age problems in community. Role of Ayurveda in Geriatrics.
19. Care of the disabled.
20. Life Style disorders (Non Communicable diseases) in community and the role of Ayurveda in them.
21. Health tourism. Ayurvedic Resort Management- Panchakarma and allied procedures.

22. Medical Sociology.

PAPER III SAMKRAMAKA ROGA PRATISHEDHAM EVAM SWASTHYAPRASHASANAM

Marks 100

1. Modern Concept of Epidemiology
2. Critical evaluation of Janapadodhwamsa.
3. Epidemiology of different Communicable diseases in detail.
4. General investigations for Communicable diseases
5. Sexually Transmitted Diseases and their control
6. Ayurvedic view of Samkramaka Rogas.
7. Investigation of an Epidemic
8. Control of Epidemics.
9. Host Defenses.
10. Ayurvedic methods of Vyadhikshamatva.
11. Health advice to travelers.
12. Hospital, Isolation ward and bio medical waste management
13. National Health Programmes. Contribution of Ayurveda in National Health Programmes.
14. Health administration under Ministry of H&FWD
15. AYUSH , NRHM, NUHM administration, functions and programmes.
16. National and International Health Agencies and their current activities.
17. Disaster management
18. Statistics related with Infectious diseases at International, National and State levels
19. Vital Statistics

PAPER IV YOGA AND NISARGOPACHARA **Marks 100**

1. History and evolution of Yoga
2. Different Schools of Yoga
3. Rajayoga –(Ashtanga yoga) philosophy of Patanjali according to Yogasutras.
4. Hathayoga - according to Hathayogapradeepika, GherandaSamhita and Shivsamhita.
5. Karmayoga – Philosophy according to Bhagavad Gita
6. Mantrayoga, Layayoga, Jnanayoga and Bhaktiyoga.
7. Physiological effect of Yoga on Body and mind – Ancient and modern concepts.
8. Concept of Sthula, Sukshma and Karana Shariras
9. Concept of Panchakoshas
10. Concept of Shad chakras and Kundalini
11. Shad Kriyas and their therapeutic effects.
12. Therapeutic effect of yogic practice in the following diseases - Diabetes, Hypertension, Cardiovascular disorders, Obesity, Asthma, Piles, Irritable Bowel Syndrome, Eczema, Psoriasis, Stress Disorders, Eye disorders, Head Ache, Juvenile Delinquency, Mental retardation, Depression, Neurosis, Sexual Dysfunction, Uterine Disorders, Cancer.
13. Yoga in Ayurveda –Concept of moksha,Tools for Moksha,Naishthikichikitsa, TatvaSmriti, Satyabudhhi, yoginamBalamAishwaram (charakaSamhitaSharirasthana chapter 1 & 5)
14. History of Nisargopachara.
15. Basic Principles of Western School of Nature Cure
16. Basic Principles of Indian School of Nature Cure – Panchabhuta Upasana and its therapeutic utility.
17. Different types of Massage and their therapeutic effects
18. Concepts of Acupuncture and Acupressure.
19. Principles of Chromotherapy and Magnetotherapy

Scheme of Practicals

1.Health promotive and protective practices of Dinacharya procedures viz. Dantadhavana,

2) Practical Demonstration of Yoga

a) Aasanas (24)

1) Swastikasan

2) Gomukhasan,

3) Sarpasan,

4) Kukuttasan,

5) Uttankurmasan,

6) Dhanurasan,

7) Matsyendrasan,

8) Mayurasan,

9) Bhadrasan,

10)Sinhasan,

11)Sarvangasan,

12)Shirshasan,

13)Pavanmuktasan,

14)Bhujangasan,

15)SuptaVajrasan,

16)Chakrasan,

17)Siddhasan,

18)Padmasan,

19)Veerasan,

20)Paschimatanasan,

21)Vajrasan,

Anjana, Nasya, Kavala, Gandusha, Dhumapana, Abhyanga, Udvartana

22) Shavasan,

23)Makarasan,

Suryanamaskara

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b) Pranayama

1) Nadishudhhi- AnulomVilomPranayam,
2) Suryabhedani,
3) Ujjayi,
4) Bhasrika,
5) Bhramari,
6) Sheetali,
7) Sitkari
8) Meditation Mindfulness meditation and Vibhashana

c) Mudra

1) Viparita karani

2) Yoga Mudra
3) Maha Mudra
4) brahma Mudra
5) Ashwini mudra

d) Bandha

1) Jalandhara, uddiyana, mula bandha

e) Shuddhikriya – JalaNeti, Sutra Neti,JalaDhauti, Kapalbhati, Tratak Basti, Nauli, vastra dhauti (if possible)

3) Practical Demonstration of Naturopathy procedures

a. MruttikaSnana
b. Mruttika Patti
c. Pada and Hasta Snana
d. Bashpasnana (Steam bath)
e. Awagahana (Immersion bath)
f. prishtasnana (Spinal bath)
g. Katisnana(Hip bath)
h. Alternate hot and cold bath
i. Observe Jacuzzi and whirlpool bath at available places.

4) Long case sheets for Pathya, Apathya, Aushadhi (if needed), Yoga and Nisargopachara advice to

a) Non communicable diseases 20

b) Communicable diseases 10

c) Garbhini Paricharya 10

d) Mal Nutrition treatment cases 10

e) Case studies of Immunization cases 10

iv) Departmental Practicals

1) Dantadhawana - 2

2) Anjana - 2

3) Nasya - 2

4) Gandusha- 2

5) Kavala- 2

6) Dhoompana – DhumavartiNirmana - 2

5) Educational Visits-

The brief report of each visit (Minimum 10 compulsory) should be written by student in a journal (Duly signed by Guide and HOD)

1) Water Purification Centre,

2) Milk Dairy,

3) Industry,

4) Leprosy Centre,

5) T.B. Centre,

6) Yoga Centre,

7) Naturopathy Centre,

8) Primary Health Center

9) Disposal of Waste Unit,

10)Sewage Disposal Unit ,

11)Hospital Disinfections,

12)Govt. Psychiatric Hospital

13)Isolation Hospital

14)A.R.T. Centre

15) Food and Drug Administration Centre

16) District /Civil Hospital

7) Field Work

a) Active Participation in Various National Health Programmes

b) Community Health Survey

c) School Health Check-up (minimum 100 students)

8.Departmental duties : Regular Attendance as-

Duty in OPD and IPD with regard to Pathyapathya, Yoga and Nisargopachar.

1. Museum Development
2. Yoga training for self Swastha and patients.
3. Departmental Seminars
4. Research Journal /Article Reviewes
5. Submit minimum 2 papers in any publications.
6. Practical knowledge of AharaDravya&Adulteration of Food
7. Proper planning, beginning ,completion of Thesis work under the guides
8. Micro Teaching (Training to take Lectures and Practicals of UG). Minimum 10.
9. Daily diary- Log book

Format of Practical / Oral Examination

Short case	20
Long Case	20
Daily work book	20
Spotting	10
Dissertation Presentation	30
Teaching & Communication Skill	20
Viva	60
Record	20
Total	**200 Marks**

Reference Books:-

1) Relevant portions of Charak, Sushruta, Vagbhata (AshtangHrudaya), Ashtang Samgraha, Sarangadhara, Bhavaprakasha, Madhavanidan&Yogaratnakara, Bhela Samhita with the respective commentaries

1) SwasthavrittaSamuchaya –VaidyaPtRajesvarDuttaShastri
2) SwasthyaVignyana -Dr.B.G.Ghanekarshastri
3) PrakritikaChikitsa -Kedarnath Gupta
4) Reddy's Comprehensive Guide to Swasthavritta –Dr.P.SudhakarReddy
5) SwasthaVigyan - Dr.MukundswaroopVerma
6) Ayurvediya Hitopdesh - Vd.RanjitRai Desai
7) Yoga and Ayurveda - Dr.Rajkumar Jain
8) SwasthvrittaVigyan - Dr.Ramharsha Singh.
9) Swasthvrittam - Dr.BramhanandTripathi
10) AyurvediyaSwasthvrittam - Vd.Jalukar
11) HathayogPradipika – SwatmaramYogendra (Kaivalyadhama)
12)YogikYogPadhati - BharatiyaprakrutikChikitsaPadhat
13)YogikChikitsa - ShriKedarnath Gupta
14)PrakrutikChikitsaVigyan Verma
15)Janasankhyashikshasidhanta evamUpadeysa - S.C.Seel
16)Swasthvritta - Dr.Shivkumar Gaud
17) Health and Familywelfare - T.L.Devraj
18)SachitraYogasanDarshika - Dr.IndramohanJha
19)Preventive and Social medicine - J.K.Park
20)Yogadeepika - Shri. B.K.S. Iyengar
21) Swasthavritta - Vd.Sakad
22)Positive Health - Dr.L.P.Gupta
23)Biogenic Secretes of Food In Ayurveda - Dr.L.P.Gupta
24)Yoga and Yogikchikitsa - Ramharsha Singh

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25)The Foundation of Contempary Yoga - R.H.Singh

26)YogasidhantaevumSadhna - H.S.Datar

27)Patanjal Yoga Sutra – Maharshi Patanjali, Karambelkar

28)PrakrutikChikitsaVidhi - Sharan Prasad

29)Text book of Swasthavritta - Dr.Ranade, Dr.Bobade, Dr.Deshpande

30)GherandSamhita

31)Bio-Statistics - B.K. Mahajan

32)Swasthavrittavidnyan - Dr.MangalaGauri

33) Community Medicine - Baride and Kulkarni.

34) Light on Yoga - Shri. B.K.S. Iyengar

35) Light on Pranayama - Shri. B.K.S. Iyengar

36) Light on Patanjala yogasutra - Shri. B.K.S. Iyengar

37) Shiva samhita – Kaivalyadhama

38) Gheranda samhita – Kaivlyadhama

39) Swasthavritta vigyan – Vd. Patrikar Vijay

40) Swasthavritta – Vd Yashwant Patil and Vd. Vhawal

41) Food and nutrition – Swaminathan

42) Preventive and Social Medicine – Mahajan

42) Preventive and Social Medicine – B.N.Ghosh

43) Preventive and Social Medicine – Gupta

44) Yoga and Nisargopachar- Vd. Prama Joshi

Syllabus prepared by

1. Dr. Mihir Hajarnavis (Group leader)
2. Dr. Arpan Bhatt (Coordinator)
3. Dr. S. Venugopal Rao
4. Dr. Sajitha.K
5. Dr.Yeshwant.R.Patil
6. Dr. Poornima Krishnamurthy
7. Dr. Yashawant Chauhan.
8. Dr. Rajkumar Bobade
9. Dr. Jayan Damodaran
10. Dr. Yogeshwar Dayal Bansal
11. Dr. Sudhanshu Dutt Sharma

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2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

Given under Clasue No. 2.10

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any:

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

19. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
20. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

21. JRAS - JOURNAL OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha

ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

22. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
23. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

24. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
25. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
26. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
27. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
28. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
29. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
30. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
31. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
32. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
33. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
34. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
35. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
36. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3. EXMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

QP CODE: …… **Register No……**

PG Ayurveda Preliminary Examinat –

(Swasthavritta and Yoga)

Paper 11- (Preventive, Social Medicine and Yoga)

Time: 3hours **Total Marks: 100**

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays **(1x20=20)**

1.Analyse the concept of Vyadhikshmatva and elicit its relation with Ojas and Bala.

Short essays **(8x10=80)**

2.Define Pranayama, its classification and relevance.

3.Define the concept of Swastha and discuss in terms of WHO definition of Health.

4.Explain the concept of Antaranga yoga .

5. Discuss the components of Disaster Management.

6. Analyse Vegadharana in relation to heart diseases.

7. Descibe the relevance of Nidra as Traopasthambha.

8. Descibe the procedure, indication and contraindication of Fasting.

9. Describe the relevance of Rasayana in prevention of diseases.

QP CODE: …… **Register No……**

PG Ayurveda Final Year Exmination

– (Swasthavritta)

Paper 1- Vaiyaktika Swasthavrittam SadvrittamCha

Time: 3hours **Total Marks: 100**

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays **(1x20=20)**

1.Explain the Dinacharya measures for protection of occular health.

Short essays **(8x10=80)**

2. Define PEM, national magnitude, features and management.

3. Achara rasayana- A comprehensive health protocol. Discuss

4.Develop a protocol for health education in connection with Greeshma ritucharya

5. Discuss the components and utility of Ratricharya.

6. Analyse Dharaneeya vega and its impact on mental health.

7. Describe types of disinfectant and qualities of ideal disinfectant.

8. Define Viruddhahara and discuss the relevance of the concept in the present scenario with valid examples.

9. Describe the impact of Prajnaparadha in mental health

QP CODE: …… **Register No……**

PG Ayurveda Final Year Examination -

(Swasthavritta)

Paper 11- Samajika Swasthavrittam

(Community Health)

Time: 3hours **Total Marks: 100**

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays **(1x20=20)**

1.Explain the concept of Ergnomics ,Occupational hazards and their preventive measures

Short essays **(8x10=80)**

2. Define the Levels of Preventions and discuss the Ayurvedic perception in Primordial prevention.

3. Discuss the scope of Swasthavritta measures in School health programme.

4.Discuss pros and cons of Immunization.

5. Define Family planning, its objectives and Ayurvedic contribution (three examples).

6. Differentiate between Web of causation of disease and Multi factorial disease causation

7. Discuss the contribution of Swasthvritta in Geriactric care.

8. Define Environment,its components and role in disease causation.

9. Describe the Chemical disinfectants, discuss their utility in Public health sector.

QP CODE: …… **Register No……**

PG Ayurveda Final Year Examination –

(Swasthavritta)

PAPER – III Samkramaka Roga Pratishedham evam Swasthyaprashasanam

Time: 3hours **Total Marks: 100**

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays **(1x20=20)**

1.Explain Epidemiology ,historical developments and approach to disease.

Short essays **(8x10=80)**

2. Describe waste management in Ayurvedic hospitals.

3. Give a brief account of Ayurvedic Disinfective measures.

4. Explain epidemiological determinants and prevention of Dengue fever.

5. Discuss the practical guidelines for investigation of an Epidemic.

6. Define Biostatistics .Explain sensitive index of maternal and child heath care.

7. Define Emphoriactrics and prepare a check list including Ayurvedic measures.

8. Describe the structure of Central health administration.

9. Describe the protocol of Disaster management.

QP CODE: …… **Register No……**

PG Ayurveda Final Year Examination -

(Swasthavritta)

PAPER IV -Yoga and Nisargopachara

Time: 3hours **Total Marks: 100**

- *Answer all questions*
- *Draw diagrams wherever necessary*

Essays **(1x20=20)**

1.Explain the concept of Shadkarma and make a parallel comparison with Panchakarma.

Short essays **(8x10=80)**

2. Explain benefits ,procedure and indications of Mud bath.

3.Discuss the concept of acidic and alkaline diet.

4. Define Pratyahara ,significance and practical utility.

5. Define Chromotherapy and give an account of therapeutic utility.

6. Descibe methods of Acupuncture,indications and contraindications.

7. Descibe Panchakosa and its relation to Vyadhi.

8. Prepare a protocol for obesity management based on naturopathic diet .

9.Define Shadchakra and explain the physiological effect of Manipuraka chakra

3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Annexure 'A'

PROFORMA

(Non – Communicable Disease case)

A. General Information :

1. Name of the Patient: …… 2. Age : ……Yrs.

3. Sex : Male/Female: …… 4.Religion : …… 5. Date of Admission: ……

6. Address : ……

7. Occupation : …… 8. Education : ……

9. Per Capita income : ……Rupees 10. Socio economic class (Modified……..)

B. Present illness :

1. Chief complaints (Chronological order) : ……

C. History of past illness :

1. Similar complaints in past: ……

2. Any other significant history : ……

D. History of illness in Family :

1. Type : …… 2. Composition : ……

3. Similar illness in family : Yes/no If yes, give details : ……

E. Life Style and personal history :

1. Occupation : Manual Work /Table Work/ Field work/ Administration / Any other (Specify).
2. Muscular exertion (occupational / domestic etc.) Minimum / Moderate / Heavy.
3. Exercise: Nil / Walking / Running / Jogging/ Cycling / Swimming/ Weight Lifting/ Anyother specify ……
4. Mental Stress & Strain : Occupational/ domestic/ any other specify ……

Hobby, Recreation : ……

5. Diet :

a. Veg / Non Veg / Mixed ……
b. Total calorie intake ……..calorie /day adequate / inadequate/ excess.
c. Fat : adequate / inadequate/ excess Vegetable / Animal fats Predominantly saturated / unsaturated ……
d. Spice & Hot foods (Specify). ……
e. Regularity in taking meals ……
f. Type of diet : balanced /Non balanced (Give reason) ……

6. Sleep and rest : adequate / inadequate ……

7. Habits & addictions:

a. Smoking: Yes /No / Past Smoker If Yes : Type /duration / quantity/ frequency……
b. Alcohol : Yes / No / Past Alcoholic If Yes : Type /duration /quantity /frequency……
c. Any Other : Specify, give details. ……

F.General Examinations:……

G. Systemic Examination : ……RS/CVS/CNS/PA : ……

H. Diagnosis : ……i. Provisional : ……..ii. Differential :……

I. Investigations : …… Investigation done : ……

Any further investigations required: ……

J. Final Diagnosis : ……

K. Management : ……..Drug therapy (give details): ……Diet modification: …… Health Education / Life Style modification : ……..

Follow up : ……

L. Prevention & Control Measures Primary Prevention : ……

Secondary Prevention : …… Tertiary Prevention : ……

Sign.of Student : …… Sign.of Supervisor : …… Date:- ……..

Annexure 'B'

PROFORMA

(Communicable Disease case)

A. General Information :

1. Name of the Patient: …… 2. Age : ……Yrs. 3. Sex : Male/Female: …….. 4. Date of Admission : …….. 5. Address : ……

6. Locality : Urban – Slum / Non – Slum / Rural / Other (Specify) ……

7. Duration of Stay in the Locality ; ……..(years/months)

8. Hospital Registration No…….. 9. Date of Admission : ……..

10. Religion/Caste:…… 11. Education: ……12. Occupation: ……

13. Type of Family : …….. 14. Total No. of Family Members: ……

15. Total Family income: ……..16. Per Capita income per month :……Rs.

17. Socio-economic Status (As per classification) : …….

☆

B. Chief Complaints (In Chronological Order)

1……..

2…… **C.**

H/O Present illness : ……**D. H/O Past illness:** ……..

i. Similar complaints in past : …… ii. Any other significant history : ……

E. History of illness in the family:……

F. Personel History a. Dietary : …… b. Immunization : ……

c. Habits : ……..

G. Environmental history (Pertinent to the route of transmission)

i) Water Supply ii) Excreta Disposal iii) Drainage iv) Cattle v) Pet animals, Poultry vi) Housing condition vii) Over Crowding viii) insect nuisance ix) Courtyard of house etc.

H. Epidemiological information (Backward tracing of index case.)

i. Any similar case in the family / neighborhood / School / Place of recreation / any other Specify …….. Ii. History of attending to similar case – if yes, when ? ……..

iii. History of visiting any unaccustomed place if yes, When ? ……..

iv. otal contacts …… V. High risk contacts……

I) Provisional Diagnosis (with justification in brief) ……..

J) Differential Diagnosis : ……

……

……

K) Investigation Done : ……

a. If yes,reports & your comments ……..

b. Other investigations required (with reason) if any ……..

L) Final Diagnosis : ……..

M) Management of Patients : 1 Chemotherapy / Other drugs (Specify with name, dose

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schedule , route of administration, duration of treatments and precautions if any) ……..

2. Diet modification …… 3. Personal Hygiene …… 4. Health Education ……

5. Any other (Specify) …… 6. Follow up : …….

N) Preventive & Control Measures at a). Family Level i. Chemoprophylaxis …….

ii. Immunization (Active / Passive) …….. iii. Personal Hygiene (specify) ……..

iv. Chemical disinfections of (Specify) ……. Concentration, quantity, technique, contact period, way of disposal of disinfected material.

v. Follow up ……vi. Care of Contacts ……

b. Community Level i. General Intervention measures…….. ii. Specific measures against the illness …….. iii. Any other (Specify) ……..

c. C. National Level ……..

National Health Programme for control / Eradication of the disease or related health programmes.

Sign.of Student: …… Sign.of Supervisor: …….. Date :- ……

Annexure 'C'

PROFORMA

(Ante-natal case)

A. General Information :

1) . Date of Examination :…… 2) Name: …… 3) Age : ……..Yrs

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4) ANC Registered : Yes/ No If yes, place/date/month of registration ……

5) Education of pt ……Occupation of pt ……..6) Education of Husband…….. Occupation of Husband……7) No of family members ……. Total family income ……..Rs/month. 8) Socio-economic class ……(as per Modified ……classification). 9) Address : …… **B) Complaints – if any :** ……

C) Menstrual History : Menarche, cycles-day/month, regularity, flow etc. L.M.P ……E.D.D……..

D) Obstetric History : Gestational .....Age (wks) ……..Type of Delivery Hosp./Home……..Conducted by ……..Baby alive/stillborn/abortion…… Live birthinterval ……Use of contraceptives(specify)…… 1 …… 2……

E) Family History :……

F) Past History : Hypertension/Diabetes/S.T.D./T.B./Leprosy etc. ……..

G) Personal History : Bowel/Bladder/Sleep/Appetite/Habits/Addictions etc. …….. Immunization status : Tetanus toxoid / Any other (specify) ……..a) For current pregnancy…….. b) For previous pregnancy……Nutritional status (based on calorie Intake, other nutrients, anthropometry etc.)……..

H) General Examination :

- Height ……Cms./ Wt. ……kgs,/TPR / B.P ……..mm of Hg
- Pallor/Icterus/ Cyanosis/Oedema/ Lyphadenopathy. any other (specify) ……..
- Cleanliness of: Skin/ Nails/Hair/Clothes/Eyes/Ears/Nose/Oral Cavity/breasts & Nipples etc.

I) P/A Examination:

- Ht. of uterus/presentation and lie of foetus / Head-floating or engaged /foetal movements/FHS/ Any other (specify) ……..

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J) Systemic Examination: RS/CVS/CNS ……

K) Investigations: - Urine:Albumin/sugar/microscopic/culture.

- Hb % Blood grouping & cross matching /VDRL/HIV/Blood Sugar

- Any other (specify) ……..

L) Clinical impression :

- Whether high risk ? If yes, mention the risk factors. ……

M) Advice to the Patient and Management : Immunization/Diet/Supplementary nutrition/personal hygiene/preparation for motherhood/drugs given 9if any) / Warning signals/fallow up visits. ……..

- Whether the patient/family members are availing services from Anganwadi /Other Community Health Centre/ Private Health Agency? If Yes – Give details ……
- Give details of referral in high risk cases……..

Follow up :

Findings & Re Marks (including advice) ……..

During subsequent visits (mention the date of visits) ……..

O) Comments :……

Sign.of Student: …… Sign.of Supervisor : ……. Date : ……

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Annexure 'D'

PROFORMA

MALNUTRITION CASE (UNDER FIVE YEARS AGE)

A. General Information :

i. Date of Examination :…… ……

ii. Name of the informer & his/her relationship with the child (case)……

1.Name of the child : ……. 2. Date of birth:…… 3. Age: ……4. Sex …….

5.Caste/ Religion : …… 6. Address : ……

7. Whether the child is attending Balwadi/ Nursery etc. ……

8. Father …….. Mother ……

I. Name : …… II. Age : …… III. Education : ……

IV. Occupation : …….. V. Income : ……

9. I. Total number of family members and family composition …….. II. Total family income …….. Rupees per month III. Per capita Income ……Rupees per month

IV. Socio economic Status …… as per ……..classification

B) Complaints (if any) : ……

C) History of Present illness : ……

D) History of Past illness (if any) : ……

E) Family history :……..

F) Birth history of the case: ……..

i. Place of delivery: Home/Hospital/Other (Specify) ……

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ii. Delivery conducted by untrained or trained Dai /Nurse / Doctor etc. ……

iii. Type of delivery: FTND/ Pre mature/ SFD/Assisted delivery etc. ……

iv. Congenital anomaly: if any give details. ……..

G) Anthropometry i. Weight: …….Kgs. ii. Height ……Cms. iii. Chest Circumference ……Cms. iv. Head Circumference ……..Cms. V. Mid arm Circumference ……Cms.

H) Immunizatttion History

i. B.C.G./OPV/ DPT/Measles/Any other give details ……

ii. Immunization card available: yes/ No. ……..

I) Dietary History

i. Breast feeding: Yes/ No …… a. If yes: Only breast feed or weaning started ……

b. If weaned : Age at weaning, type of weaning food etc. ……

c. If not breast feed: At what age breast feed stopped? (give reason if any)……

ii. a. Total calorie intake …….. Calorie / day. b. Total Protein intake ……gram/day

iii. Calorie/ Protein deficient if any: Yes/No …… If yes mention percent of deficient …….

iv. Any other nutritional deficiency (Specify) ……

J) General Examination: 1) Built, nourishment & general appearance, 2) TPR, 3) Pallor, 4) Icterus, 5) Cyanosis 6) Lymphadenopathy, 7) Oedema, 8) Dehydration, 9) Eyes, 10) Ears, 11) Face, Nose, Lips & Tongue 12) Teeth gums oral cavity 13) Skin, nails hair, 14) Rachitic changes 15) Any other (specify)

K) Systemic Examination: RS/CVS/PA/CNS/Gonads ……

L) Milestones of growth & development: Physical / Psychological/ Motor / intellectual/

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behavioral/ Social Milestones: Normal/ Augmented / Delayed ……

M) Provisional diagnosis / Differential Diagnosis: ……

N) Investigations: ……

O) Diagnosis: ……

P) Management, Advise and comments: ……

Sign.of Student: ……Sign.of Supervisor: …… Date: ……

Annexure 'E'

PROFORMA

PATHYAAPATHYA, RUTUSHODHAN, YOGA ADVICE TO PATIENTS OF ATTACHED HOSPITAL.

A. General Information:-

1) Sr. No. …… 2) Name of the Patient: ……

3) Address : ……

4) OPD No. : …… IPD No. …… 5) Diagnosis: ……

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6) Date of Advice: ……..

B) Advice given

a) Pathya – Apathya i. Ahara: …….. ii. Vihara: ……

b) RutuShodhanUpakarma : …… c) Yogopachar: ……

C) Date of follow up: ……

D) Remarks:

……

……

Sign.of Student: ……Sign.of Supervisor: …… Date: ……

Annexure 'F'

PROFORMA

CASE STUDIES – IMMUNIZATION CASE RECORD

1) Name of Child or Mother : …… 2) Age :…… 3) Sex : ……

4) Address : ……

5) Date of Birth …… 6) Name of Vaccine given : …… 6) Type of Vaccine : …… 7) Dose : …… 8) Route of Administration : ……

9) Site of Administration : …… 10) Instructions to Mother : ……

Sign.of Student:……Sign.of Supervisor: …… Date: ……

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Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

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(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

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(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

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Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

b) Begin with a verb

c) State in a neutral manner

d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.

5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

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Lay out

1. Font – Arial / Times New Roman 2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straightforward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.

Use the term Dissertation for Masters and Thesis for Doctoral

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REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Kaumarabhritya –Bala Roga

(M.D. (Ayurveda)- Paediatrics)

Course Code 257

(2016-17 Academic year onwards)

2016

2. Course Content

2.1 Title of Course:

Ayurveda Vachaspati – Kaumarabhritya –Bala Roga (M.D. (Ayurveda)- Paediatrics)

2.2 Aims and objectives

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration: 3years

2.6 Syllabus

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

The concept of health care counseling shall be incorporated in all relevant areas.

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M.D./M.S.-AYURVEDA
PRELIMINARY PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics
3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.

   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

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Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda Fundamental research on concepts of Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-
   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

   concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
   Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

   Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies. Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development
    -Brief information on the traditional drug discovery process

    -Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell culture based assays, use of concepts of systems biology and networkphysiology

    -Brief introduction to the process of Drug development.

12. Clinical research:
    Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

    Observational and Interventional studies

    Descriptive & Analytical studies
    Longitudinal & Cross sectional studies
    Prospective & Retrospectives studies
    Cohort studies

    Randomized Controlled Trials (RCT) & their types

    Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

    Errors and bias in research.

    New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

    Survey studies -

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Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives.
National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology.
Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

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PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad

PRACTICAL

100 Marks; Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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2. Drug Survey by Mayaram Uniyal
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15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA PRELIMINARY
15. KAUMARBHRITYA - BALA ROGA
(Pediatrics)

PAPER-II **Theory- 100 marks**

PART A **50 marks**

1. Development of Kaumarbhritya tantra including ancient and modern literature. Strength of Ayurveda specific to child health care.
2. Vayobheda (Classification of age) according to different classics
3. Anatomical and physiological differences in child compared to adult.
4. Ayurvedic consideration of physiology and pathology of Dosha, Dhatu, Mala, Oja, Agni, Prakriti (sharirika-manasika), Kaya and Dhatuposhana in children.
5. Basic Concepts of growth and development, and its assessment.
6. Ayurvedic and modern clinical methods of examination of healthy and diseased newborn and children.
7. Knowledge of modern diagnostic tools like clinical and laboratory investigations, X-ray, USG, MRI etc.
8. Fundamentals of Ayurvedic treatment for childhood disorders.
9. Applied pharmacological considerations: Ayurvedic and modern concepts of drug doses, administration, distribution, metabolism, excretion, and other important factors of consideration.
10. National programs related to pediatrics.
11. Childhood Samskara
12. Principles of Child Psychology (Ayurvedic & modern concepts)

PART B **50 marks**

13. Concept of Bala Rasayana and its application in physical and mental health of children.
14. Concept of Vyadhi-Kshamatva avam Vardhanopaya. Concept of immunity and immune enhancing measures including immunization.
15. Concept of Dhupana and Raksha karma and their clinical application in pediatric practice
16. Basic concepts of single drugs commonly used in pediatric practice with special reference to their karma like- Guduchi, Yastimadhu, Mandukaparni, Shankhapushpi, Ativisha, Pippali, Maricha, Shunti, Haritaki, Amalaki, Tulasi, Bhumyamalaki, Daruharidra, Haridra, Vidanga, Katuki, Dadima, Brahmi, Ashvagandha, Shatavari, Bala, Kampillaka, Trivrita, Jyotishmati, Vacha, Jeevanti, Rasna, Shatavari, Anantamula (Krishna Sariva), Durva, Khadir, Tankana, Tambula, Jatamansi, Sphatika.

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17. Knowledge of their ingredients, indications, precautions and specific considerations including adverse drug reactions (ADR) of commonly used Ayurvedic formulations in pediatric practice e.g. Aravindasava, Baalachaturbhadra Churna, Kumarakalyana Rasa, Saraswatarista, Swarnaprashana (Kashyapa Samhita), Kumaryasava, Kushmanda Rasayana (Sharangdhar), Ashvagandha Rasayana (Ashtanga Hridaya), Brahmi Ghrita, Kalyanaka Ghrita, Talishadi Churna, Sitopaladi Churna, Haridra Khanda, Krimikuthara Rasa, Mugdha Rasa, Dantodbheda-Gadantaka Rasa, Rajanyadi Churna (Ashtanga Hridaya), Samvardhana Ghrita, Ashta Mangal Ghrita.
18. Methods of preparation of various specific Kalpana (e.g. Lehya, Syrup, drops etc.) according to needs of children.
19. Common instruments and their application in new born care and general pediatric practice.
20. Specific considerations in research methods related to Pediatrics.
21. Regulatory laws related to child health management.

PRACTI CAL **100 marks**

Contents:

1. a) In-patient case history record -(25 Patient)
   b) Child Health record - (50 Case)
2. Involvement in Outreach and National programs:
   a. School Child health checkup
   b. Adolescent education
   c. Adolescent counseling etc

3. Pediatric ward/nursery management.

Distribution of marks (Practical)

Record	20
Long Case	30
Short Case	10
Viva	25
Medical Procedure/Lab work	15
Total	**100**

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REFERENCE BOOKS:

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2. Principles & practice of Pediatrics in Ayurveda: CHS Shastry
3. Child Health Care in Ayurveda: Abhimanyu Kumar
4. Ayurvedic Concepts of human Embryology: Abhimanyu Kumar
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6. Kaumarbhritya Ke Antargata Balgraho Ka Kramika Evam Vaigyanika Adhyana by Prof. Chanchal Sharma
7. Notes on Kaumarbhritya-by Dr. Dinesh K S
8. Pran - Pratyagamanam-by Dr. B.M. Singh
9. Ayurveda Dwara Matra Evam Shishu Paricharya by Dr. KS Patel, V.K. Kori & Rajgopal S.
10. Kaumarbhritya related references from Charaka Samhita, Sushruta Samhita Vagbhata etc.
11. Clinical Methods in Paediatrics by Meharban Singh
12. Pediatrics Emergencies by Meharban Singh
13. Essential Pediatrics O.P. Ghai
14. Text Book of Pediatrics Nelson
15. Care of New Born by Meharban Singh

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PAPER – I Bija, Garbha Vigyaniya (Human Genetics, Embryology) Marks: 100

A. Prakrita Bija-Bijabhaga-Bijabhagavayava evam Tadjanya Vikriti (Genetics and related disorders)

1. Ayurvedic genetics with modern interpretations: Shukra, Shonita, Shukra Shonita Doshas, Bija-Bijabhaga-Bijabhagavayava Vikriti, Matrija and Pitraja Bhavas, Yajjah Purushiya and Atulyagotriya; Measures for obtaining good progeny.
2. Modern genetics

   Basic concepts:
   1. Cell, cell division, nucleus, DNA, chromosomes, classification, karyotype, molecular and cytogenetics, structure of gene, and molecular Screening.
   2. Human Chromosomes - Structure, number and classification, methods of chromosome preparation, banding patterns.
   3. Single gene pattern inheritance: Autosomal & Sex chromosomal pattern of inheritance, Intermediate pattern and multiple alleles, Mutations, Non Mendelian inheritance, mitochondrial inheritance, Genomic imprinting, parental disomy.

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4. Criteria for multi-factorial inheritance.

Pathogenesis

1. Pathogenesis of chromosomal aberrations and their effects, recombinant DNA, genetic inheritance, inborn errors of metabolism
2. Chromosomal abnormalities: Autosomal & Sex chromosomal abnormalities, syndromes
3. Multifactorial pattern of inheritance: Teratology, Cancer Genetics – Haematological malignancies, Pharmacogenetics.
4. Chromosomal disorders
5. Chromosomal aberration (Klinefelter, Turner and Down's syndrome
6. Genetic Counseling, Ethics and Genetics.

B. Prakrita Bija-Bijabhaga-Bijabhagavayava evam Tadjanya Vikriti (Genetics and related disorders)

1. Garbha (embryo), Garbhawastha (gestation period), sperm, ovum; spermatogenesis; oogenesis; structure of ovum
2. Sperm in the male genital tract; sperm in the female genital tract, activation and capacitation of sperm.
3. Garbha Masanumasika Vriddhi evam Vikasa (Ayurvedic and modern concepts of Embryo and Fetal development)
    - First week of development
    - Second week of development
    - Third week of development
    - Fourth to eighth week of development (Embryonic period)
    - Development from third month till birth (Fetal period)
4. Formation of Prakriti, their assessment in children viz. Bala, Kumara, Yauvana; Pathya-Apathya according to Prakruti.
5. Apara (Placenta) Apara Nirmana (Formation of placenta), Apara Karya (Functions of placenta); Apara Vikara (Placaental abnormalities)
6. Nabhinadi (Umbilical Cord)
   Formation and features of umbilical cord
7. Garbha Poshana (Nutrition- from conception to birth)
8. Yamala Garbha(twins)

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9. Garbha Vriddhikara Bhavas, Garbhopaghatkara Bhavas.
10. Effect of maternal medication, diet and illness over fetus.
11. Teratology including defects of bija, atma karma, kal, ashaya etc.: causative factors for teratogenecity, mode of actions of teratogenes, critical periods
12. Perinatal Care and Perinatal complications
13. Scientific study of Jataharini specific to children.
14. Prenatal diagnosis
15. Samanya Janmajata Vikara (Common congenital anomalies of different systems): Sahaja Hridaya Vikara (Congenital Cardiac Disorders) Jalashirshaka (Hydrocephalus), Khandaoushtha (cleft lip), Khanda-Talu (cleft palate), Sanniruddha Guda (Anal stricture / imperforated anus), Pada-Vikriti (Talipes equanovarus and valgus), Tracheoesophageal Fistula (TOF), Spina bifida, Meningocele, Meningomyelocele, Pyloric Stenosis.

PAPER-II Navajata Shishu Vigyan evam Poshana **Marks: 100**

PART-A

1. Navajata Shishu Paribhasha, Vargikarana (Important definitions and classification related to neonates.)
2. Navajata Shishu Paricharya evam Prana-Pratyagamana (Care of the newborn including recent methodology for the resuscitation)
3. Samanya Navajata Shishu Paricharya (General Neonatal Care –Labour room onwards)
4. Samaya purva evam Samaya pashchat Jata Shishu Paricharya (Management of preterm, post term and IUGR newborn)
5. Prasava Kalina Abhighataja Vyadhi (Birth injuries): Upashirshaka (Caput , cephalohematoma), Bhagna (Fractures), Mastishkantargata Raktasrava (ICH, IVH, Subdural hemorrhage)
6. Navajata Shishu Parikshana (Examination of new born): Ayu Parikshana (including Lakshanadhyaya) Modern approach of Neonatal Examination including gestational age assessment
7. Kumaragara: Navajata Shishu Kaksha Prabandhana (Nursery management), NICU, Nursery plan, staff pattern, medical records, Visankramnikarana (sterlization), Knowledge of equipments used in nursery.

PART-B

8. Navajata Shishu Vyadhi (Early neonatal disorders): Hypothermia, Shvasavarodha (Asphyxia Neonatorum/Respiratory distress), Ulvaka (Aspiration pneumonia), Rakta Vishamayata (Neonatal septicemia), Kamala (Neonatal Jaundice), Akshepaka (Neonatal convulsion), Pandu (Anemia), Atisara (Diarrhea), Asamyaka Nabhinal kartanjanya vyadhi.
9. Navjata Kshudra Vikara (Minor neonatal ailments): Chhardi (Vomiting), Vibandha (constipation), Udara shul (Infantile colic), Puya Sphota (Pyoderma), Shishu Netrabhishyanda (Ophthalmia neonatorum).
10. Sadyojatasya Atyayayika Chikitsa (Management of neonatal emergencies): Shock, Fluid and electrolyte imbalance, Convulsion, Hemorrhagic diseases of Newborn etc.

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11. Procedures: Shiro-Pichu, Abhyanga, Parisheka, Pralepa, Garbhodaka Vamana (Stomach wash), Ashchyotana Neonatal resuscitation techniques, Blood sampling, Intravenous canulation, Umbilical vein catheterization, Bone marrow aspiration, Phototherapy, Naso-Gastric tube insertion, Urethral catheterization, Exchange blood transfusion, Thoracocentesis, Bone marrow infusion, Lumbar puncture
12. Nutrition:
    A. Navjat Shishu Ahara (Neonatal feeding):

        1. Specific Feeding methodology as per Ayurveda and recent advances; Day to day fluid, milk, caloric requirement for the newborn, feeding technique for the preterm baby.
        2. Stanyotpatti and Prasruti (Lactation physiology), Stanya Samghatana (Composition of breast milk), Stana Sampat (Characteristics of normal breast), Stanya Sampata evam Mahatva (Properties & importance of pure milk), Stanya-Piyusha (Colostrum); Stanya-Pana-Vidhi (Method for breast milk feeding), Stanyakshaya / Stanyanasha (Inadequate production and absence of breast milk), Stanya parikshana (Examination of breast milk), Stanyabhave Pathya Vyavastha (Alternative feeding methods in absence of breast milk), Various feeding methods, TPN(Total Parenteral Nutrition)
        3. Stanyadosha (Vitiation of Breast milk), Stanya Shodhana (Purification of breast milk), Stanya Janana and Vardhanopakrama (Methods to enhance breast milk formation)
        4. Dhatri (Wet nurse): Dhatri Guna and Dosha (Characteristics of Wet nurse), Concept of Breast Milk Banking.
        5. Lehana (Elucturies)

    B Bala-Poshana (Child Nutrition):
        6. Daily requirements of nutrients for infant and children
        7. Common food sources
        8. Satmya and Asatmya Ahara (Compatible and incompatible diet)
        9. Pathya evam Apathya Ahara (Congenial and non-congenial diet)
        10. Stanyapanayana (Weaning)

PAPER-III Balrog (Pediatric Disorders) Marks: 100

PART-A

1. Pranvaha Srotasjanya Vyadhi (Respiratory disorders)- Kasa (Cough), Shvasa (Respiratory distress Syndrome), Tamaka Shwasa (Childhood Asthma), Bronchiolitis, Shvasanaka Jwara (Pneumonia- bacterial, viral etc) Rajyakshma (tuberculosis), Vaksha-Puyata (Pyothorax),Vaksha Vata-Purnata (Pneumothorax)
2. Annavaha Srotasjanya Vyadhi (Gastrointestinal disorders): Jwar (Fever), Chhardi (Vomiting) Ajirna (Indigestion), Kshiralsaka, Atisara (Diarrhea), Pravahika, Vibandha (Constipation, Udarshula (Pain in abdomen), Guda bhramsh (Rectal prolapse)

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3. Rasa evam Raktavaha Srotasjanya Vyadhi (Hematological and circulatory disorders): Pandu (Anemia and its various types like Nutritional,haemolytic etc.) and , Raktapitta (Bleeding disorders), Vishishta Hridrog (Specific cardiac diseases- RHD etc), Hypertension, Leukemia.
4. Mamsavaha Srotasjanya Vyadhi: Myopathies
5. Mutravaha srotasjanya Vyadhi (Urinary System disorders): Vrikkashotha (Glomerulonephritis and nephrotic syndrome), Mutrakriccha (Dysuria), Mutraghata (Anuria),
6. Vatavaha Sansthanjanya Vyadhi (Nervous system disorders): Apasmara (Epilepsy), Mastulunga-Kshaya, Mastishka-Shotha (Encephalitis), Mastishkavrana-Shotha (Meningitis),
7. Pediatric disabilities and Rehabilitation: Cerebral palsy, Ardita (Facial paralysis), Pakshavadha (Hemiplegia), Ekangaghata (Monoplegia), Adharanga Vayu (diplegia),. Amavata (Juvenile Rheumatoid arthritis)
8. Manovaha Srotasa Vyadhi: Breath holding spell, Shayya mutra (Bed wetting), Autism, ADHD (Attention Deficit and hyperactive disorders), Learning Disability, Mental retardation, Temper tantrum, Pica.

PART-B

9. Antahsravi evam Chayapachayajanya Rog (Endocrine and Metabolic disorders)
10. Kuposhanjanya Vyadhi (Nutritional disorders): Karshya-Phakka-Balshosha- Parigarbhika (PEM and allied disorders), Vitamin-mineral and trace elements deficiency disorders, Hypervitaminosis,
11. Krimi evam Aupsargika Rog (Infestations and Infections):Krimi (Giardiasis and intestinal helminthiasis,Amoebiasis) Common bacterial, viral infections with special reference to vaccine-preventable diseases: Rohini (Diphtheria), Whooping cough, Aptanaka (Tetanus including neonatal tetanus), Romantika (Measles), Karnamula Shotha (Mumps), Rubella and Masurika (Chickenpox), Antrika Jwar (Typhoid and Paratyphoid), Viral Hepatitis,),; Vishama Jwar (Malaria) and Kala-azar, Dengu fever, HIV (AIDS), Poliomyelitis, Mastishkavaran Shotha (Meningitis), Mastishka Shotha (Encephalits), Chickengunia
12. Tvaka Vikara (Skin disorders): Ahiputana (Napkin Rashes), Shakuni (Impetigo), Sidhma, Pama, Vicharchika, Charmadal (Infantile atopic dermatitis), Gudakutta.
13. Anya Vyadhyi (Miscellaneous disorders): Jalodar (Ascites),Gandamala, Apachi (Cervical lymphadenitis), Kukunakadi Akshi Rog, Hodgkin & non-Hodgkin Lymphoma, Abnormal growth patterns, Short stature , Niruddha prakash (Phimosis), Paridagdha Chhavi, Utphullika
14. Samghata- Bala Pravrita Rog (damstra): Dog bite. Snake bite, Scorpion bite etc
15. Atyayika Balarog Prabandhana (Pediatric emergency management): Shock and Anaphylaxis, Fluid and electrolyte management, Drowning, Foreign body aspiration, Status epilepticus, Acute hemorrhage, Acute renal failure, Febrile convulsion, Status asthmaticus, Burn, Acute Poisoning
16. Balagraha: Scientific study of Graha Rogs
17. Life Style disorders

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PAPER-IV Kaumarabhritya in Ancient Classics and recent Advances **Marks: 100**

1. Significant contributions of Kashyapa samhita, Arogya raksha Kalpadrum and other texts /treatises of Ayurveda such as Harita Samhitain the field of Kaumarbhritya including relevant parts from Brihatrai
2. Panchakarma: Principles of Panchakarma [Swedan–Hasta–Pata sweda etc], and their application in pediatric practice in detail.
3. Update knowledge of clinical pediatrics including recent researches in Kaumarbhritya.
4. Fundamentals of Hoskaupital management with special emphases on Pediatric Ward.

Practical/ Clinical Exposure for (Record of exposures to be produced at the practical examination)

1. Full term, preterm, post term new born baby care
2. Practical procedures like – phototherapy, premature baby care, KMC, venepuncture, cord blood sampling, stomach wash, suction, resuscitation, etc.
3. Practical skill of Pediatric Panchakarma procedures
4. Child Health Check up
5. IQ Assessment of Children
6. Exposure to National Health Programs related to Children, including Immunization Program.
7. Patient case Records (50 Records)
8. Practical knowledge of modern diagnostic (invasive & non invasive) tools and techniques used in pediatrics.
9. Management of common pediatrics emergencies.
10. Participation in UG teaching/training from UG syllabus via A-V aids (minimum-3)
11. Minimum 15 days compulsory reciprocal exposures in Kaumarbhritya department of other institution during the study period.
12. Participation in National/international seminars
13. Publication/acceptance of two research papers in indexed/peer reviewed/ISSN journals from the dissertation.

Pattern of practical examination:

Case record	15 Marks
Short Case	15 Marks
Long Case	25 Marks
Identification of instruments/ spotting	10 Marks
Teaching and Communication Skill	05
Dissertation Presentation	05Marks
Viva-voce	25 Marks
Total	**100**

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Reference Books

1. Kashyapa Samhita Complete Hindi translation by Satyapal Vidhyalankara English translation by Prof. Premvati Tiwari
2. Principles & practice of Pediatrics in Ayurveda: CHS Shastry
3. Child Health Care in Ayurveda: Abhimanyu Kumar
4. Ayurvedic Concepts of human Embryology: Abhimanyu Kumar
5. Kaumarbhritya by Prof. D.N. Mishra
6. Kaumarbhritya Ke Antargata Balgraho Ka Kramika Evam Vaigyanika Adhyana by Prof. Chanchal Sharma
7. Notes on Kaumarbhritya-by Dr. Dinesh K S
8. Pran - Pratyagamanam-by Dr. B.M. Singh
9. Ayurveda Dwara Matra Evam Shishu Paricharya by Dr. KS Patel, V.K. Kori & Rajgopal S
10. Kaumarbhritya related references from Charaka Samhita, Sushruta Samhita Vagbhata etc.
11. Clinical Methods in Paediatrics by Meharban Singh
12. Pediatrics Emergencies by Meharban Singh
13. Essential Pediatrics O.P. Ghai
14. Text Book of Pediatrics Nelson
15. Care of New Born by Meharban Singh

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2.7 Total number of hours

As given under 'Syllabus'.

2.8 Branches if any with definition

As given under 'Syllabus'.

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

As given under 'Syllabus'.

2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

As given under 'Syllabus'.

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

As given under 'Syllabus'.

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the

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name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.

4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.

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17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

As given under 'Syllabus'.

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of at least 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

As given under 'Syllabus'.

2.19 Reference books

As given under 'Syllabus'.

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/ Chief Editor Prof. P.K. Prajapati
   Director, IPGT & RA, Gujarat Ayurved University, Jamnagar
3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha
   ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

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4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

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2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3.EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

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2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

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h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.
2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.
3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

As given below

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Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

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MODEL QUESTION PAPER

First Year MD Ayurveda Preliminary Examinations

Paper II - KAUMARABHRITYA – BALA ROGA

Time 3 Hours **Maximum Marks 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Explain the concept of Growth & Development and its assessment.

Short essays **(8×10 = 80 marks)**

2. Importance of Samskara in clinical practice.
3. Examination of a diseased New born.
4. Dhathuposhana in children.
5. Relevance of Rakshakarma.
6. Fundamental treatment principles for Childhood illness
7. Measures to improve Vyadhikshamatwa.
8. Samvardhana ghritha.
9. Utility of Guluchi, Athivisha, Yashtimadhu and Trivrith.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

KAUMARABHRITYA – BALA ROGA

Paper I - Bija, Garbhavijnaniya (Human genetics, Embryology)

Time 3 Hours Maximum Marks 100

Answer all questions

Essay **(1×20 = 20 marks)**

1. Pathogenesis of Chromosomal abnormalities.

Short essays **(8×10 = 80 marks)**

2. Factors favouring the Intra-uterine Growth and Development.
3. Explain two Congenital anomalies.
4. Importance of Perinatal Care.
5. Placental abnormalities and fetal outcome.
6. Discuss about Jathaharini.
7. Congenital Heart Disease (Sahaja Hridrogam).
8. What are the causes for Developmental Disorders.
9. Explain garbha Vridhi Vikasa karma (Intra-uterine Growth and Development)

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

KAUMARABHRITYA - BALA ROGA

Paper II Navajata Shisu Vigyan evam Poshana

Time 3 Hours | Maximum Marks 100

Answer all questions

Essay **(1×20 = 20 marks)**

1. Prasavakaleena abhighataja vyadhi

Short essays **(8×10 = 80 marks)**

2. Relevance of Ayupareeksha
3. Indications of Lehana
4. Sthanya dushti karanas and explain two Sthanyadushtijanya vikaras.
5. Sthanya sodhana chikitsa
6. Care of the New Born and its Importance.
7. Importance of Prasana in New Born.
8. Pathophysilogy of Neonatal jaundice.
9. Management of a Pre-term baby.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

KAUMARABHRITYA - BALA ROGA

Paper III Balrog (Pediatric Disorders)

Answer all questions

Time 3 Hours Maximum Marks 100

Essay **(1×20 = 20 marks)**

1. Principles and management of Rasa Dushti janya vikaras.

Short essays **(8×10 = 80 marks)**

2. Discuss about Apasmara in children with its treatment Principles.
3. Differentiate Attention Deficit Hyperactivity Disorder and Autism.
4. Prevention of Aupasargika Rogas.
5. Principles and management of Kuposhanajanya vikaras.
6. Clinical features of Pandu and Krimi.
7. Phakka roga chikitsa.
8. Explain the concept of Graha.
9. Common Pediatric emergencies.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

KAUMARABHRITYA - BALA ROGA

Paper IV Kaumarabhritya in ancient classics and recent advances

Answer all questions

Time 3 Hours Maximum Marks 100

Essay **(1×20 = 20 marks)**

1. Importance of Vedanadhyaya of Kasyapa Samhita in clinical Diagnosis.

Short essays **(8×10 = 80 marks)**

2. Contributions of Arogyakalpadruma to Visarpa.
3. Restrictions of Sodhana Chikitsa in Childhood.
4. Relevance of Vasthi in pediatric neurological disorders.
5. Kumaragara for effective pediatric care. Detail.
6. Modified Swedana chiklitsa in children.
7. Sadya snehana as Poorvakarma.
8. Kasyapa's contributions to Pediatric Dietetics.
9. Indications for Vamana in Children.

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3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams

As per syllabus

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

10. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

11. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

12. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

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4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if

any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

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(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

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Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.

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4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summary and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)

1. Comparison of baseline data in different groups.
2. Introduction 5%

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3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

Name of Institution:

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CHILD HEATH CARD

MRN:

Child Name: Age: Sex:

Parent/Guardian's Name:

Educational Status:

School:

1. Health history and medical information pertinent to routine child care and diagnosis/ treatment in emergency ☐ none
   Describe if any:

2. Describe all medications and any special diet the child receives and the reason for that none ☐
   Describe if any:

3. Child allergies ☐ none
   Describe if any:

4. List any health problems or special needs and recommended treatment or services
   ☐ None
   Describe if any:

5. Does the child appear to be free from contagious or communicable diseases
   ☐ Yes / ☐ No
   If no, Explain :

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6. Has the child been immunised properly for age : ☐ Yes/ ☐ No

7. In your assessment whether the child has normal growth : ☐Yes/ ☐ No
   If no, details:

8. Is the child physically fit : ☐ Yes/ ☐ No
   If no, details:

9. Does the child have any illness now : ☐ Yes/☐ No
   Describe if any:

10. Vital signs: Pulse rate – Heart rate –
    Respiratory rate – Temperature –
    BP-

11. Anthropometry: Height – Weight – HC – MUAC –

12. Personal History:

Diet:	Veg/Non-veg
Appetite:	
Bowels:	Normal/ Constipated/ Loose stools
Micturition:	Normal/ Polyuria/ Anuria/ Dysuria/ Bed wetting
Sleep:	Sound/ Disturbed
Habits;	
Addictions:	

Case No.

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CASE REPORT

Name of child: Age : Sex:

Name of parent :

Address of parent : I.P. No.:

Religion : Ward:

Occupation of Parent : Date of admission:

Informant and his/her reliability: Date of discharge:

HISTORY

1. Chief presenting complaints

2. History of presenting complaints

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3. H/o previous illness

4. Birth history
   a) Antenatal:

   b) Natal:

   c) Postnatal:

5. Developmental history

   a) Gross motor -

Head control	Turning over
Sit with support	Sit without support
Crawling	Stands with support
Walking without support	

   b) Fine motor

Grasping	self feeding
Buttoning	drawing

   c) Social

Social smile	responds to name
Indicates his wants	dry by day
Dry by night	dresses unassisted

   d) Language

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Dadi, Mummy / Accha, Amma Small sentences
Story telling

Motor: Normal / Delayed
Fine motor: Normal / delayed
Social: Normal / Delayed
Language : Normal / Delayed

6. Immunization history

7. Dietetic history

EBF –

Weaning started –

Present dietetic history

Type of supplementary diet – Fruit/ rice/ cereals/ any other

Present food items – Breast milk/ breast milk + supplementary foods/
Regular foods

Mode of preparation of food –

8. Family history

9. Personal history

a)	Diet	vegetarian/ non-vegetarian
b)	Appetite	good/ moderate/ poor
c)	Bowels	normal/ constipated/ loose stools
d)	Micturition	normal/ polyuria/ anuria/ dysuria/ bedwetting
e)	Sleep	sound/ disturbed
f)	Habits	Nil/ day sleep/ night wakening /frozen foods
g)	Allergies	Nil/ if any specify -

GENERAL EXAMINATION

1.General Comment - a) Attitude – Normal/Abnormal

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b) Posture – normal/ abnormal
c) Appearance: comfortable / sick looking/ hyperactive / inattentive
d) Built: poor/ moderate/ well
e) Nourishment: poor/ moderate/ well
f) Facies: normal / puffiness /orbital swelling

2. Vital signs- PR- HR-

RR- Temp –

BP-

3. Anthropometry - Height - U/L segment ratio-

Weight- HC- CC-

MUAC- Arm span-

4. Head to foot Examination-

a)Head- Frontal bossing – Present/Absent

b)Fontanels – 1. Closed/ Open 2. Pulsatile/ not pulsatile

3. Normal /depressed/ bulging 4. Time of closure-

c) Face – Dysmorphism/ Micrognathia/ Retrognathia/ Normal

d) Eyes – upward/ downward slant/ microophthalmia/ nystagmus/ pallor/ icterus/ hypertelorism/ blue sclera/ Normal

e) Ears – Anomalies/ low set/ discharge/ normal

f) Nose- Flat nasal bridge/ upturned nostril/ normal

g) Dentition – Normal/ Abnormal

Time of eruption - Teeth- Vitamin deficiency- present/ absent

No. of teeth – Shape of teeth – Normal/ Abnormal

H)Neck – Short neck/ webbing/ normal/ pulsations/ stiffness/Normal

i) Skin – normal/ abnormal

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If abnormal – Nodular/ purpura/ skin rash/ pigmentation/ icterus/ oedema/ discolouration/ patches

PEM – present/ absent

j) Limbs – Short/ long limbs/ normal/ crossing of limbs/normal

Hyper mobility of joints – Present/absent

k) Hair – Hypopigmented/ Sparseness/ seborrheic dermatitis/ normal

l) Chest – Pectus carnatum/excavatum/ wide spaced nipples/ normal

m) Spine – Swellings/ kyphosis/scoliosis/excess lordosis/ normal

n) Abdomen- Umbilical hernia/ distention/ dialated veins/ normal

o) Genitalia- Hernia/ hydrocoele/ micropenis/ undescended testis/ normal

ASHTASTHANA PAREEKSHA

1. Nadi – V/P/K
2. Mootram – Normal/ mootralpata/ bahumootrata/ mootravarodham
   Colour – Normal/pandu/ raktam/ neelam/ krishnam/ haritam
3. Malam –
   Colour – Krishnam/ haridra/ panduswetam
   Consistency – pinditham/ sushkam/ draveekritham
4. Jihwa – Normal/sweta/pita/haritha/nila/Krishna
5. Sabdam – guru/ sphutam/ ubhaybhyam rahitham
6. Sparsam – ushna/ seetam/ ardram
7. Drik – dhoomram/ peetam/ jalardram
8. Akrithi – V/P/K

SYSTEMIC EXAMINATION

Respiratory system

Rate :
Rhythm:
Character of breathing: Thoraco abdominal/thoracic/abdominal
Other findings:

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Cardio vascular system

Heart rate Heart sounds

Other findings:

Gastro intestinal system

Inspection:

Palpation:

Percussion:

Other findings:

Urogenital system

Inspection:

Palpation:

Urine: colour : frequency : flow:

Other findings:

Integumentary system

Inspection:

Palpation:

Other findings:

Central Nervous System

Higher Mental Functions

1. Appearance -
2. Behavior -
3. Level consciousness - Conscious/ Drowsy / stupor / Obtundation/ Delirium / Deep coma / flaccid coma
4. Delusion - Present / Absent
5. Hallucination - Present / Absent
6. Illusion - Present / Absent
7. Dementia - Present / Absent
8. Amnesia - Present / Absent
9. Sleep - Sound /Disturbed
10. Orientation in time and place- Present / absent
11. Memory - Normal / reduced
12. Intelligence - Normal / reduced
13. Speech - Clear / unclear

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If unclear specify, 1. Monosyllable / bisyllable / phrase / sentences
2. Verbal / non verbal
3. Dyslexia / Dysarthria

If Dysarthria - Staccato speech/ Scanning speech/ Slurring speech

14. Dysphonia - Present / Absent
15. Dysgraphia - Present / Absent
16. Echolalia - Present / Absent
17. Gait - Normal / Abnormal

If abnormal specify, Hemiparetic/ Ataxic/ shuffling/ high stepping / scissoring/ waddling / others.

18. Emotions:

Cranial Nerves	**Not tested**	**Affected**	**Not affected**
1. Olfactory nerve			
2. Optic nerve			
3. Occulomotor nerve			
4. Trochlear nerve			
5. Abducent nerve			
6. Trigeminal nerve			
7. Facial nerve			
8. Vestibulocohlear nerve			
9. Glossopharyngeal nerve			
10. Vagus nerve			
11. Accessory nerve			
12. Hypoglossal nerve			

Ptosis - Present / Absent
Squint - Present / Absent
If present Convergent / divergent
Paralytic / concomitant
Nystagmus - Present / Absent
If present Horizontal / Vertical / Rotatory

Motor System1. Bulk of Muscles

Muscle Bulk:

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Muscle Tone:

Muscle Power:

Co-ordination of movements

Finger nose test - Possible / Impossible
Heel knee test - Possible / Impossible

Reflexes

Superficial reflexes

1. Corneal and conjunctival - Normal / Reduced / Exaggerated
2. Abdominal - Normal / Reduced / Exaggerated
3. Cremasteric reflex

Deep tendon reflexes

	0	1	2	3	4
Knee jerk					
Ankle jerk					
Jaw jerk					
Biceps					
Triceps					
Supinator					

Sensory System

Lateral column sensations

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1. Light touch - Rt. – Sensitive / Not sensitive
   Lt. – Sensitive / Not sensitive
2. Pain - Painful / painless
3. Temperature - Sensitive / Not sensitive

Posterior column sensations

1. Position sensation test - Possible / Not possible / Not tested
2. Steriognosis - Possible / Not possible / Not tested
3. Agraphasthesia - Possible / Not possible / Not tested
4. Tactile localization - Possible / Not possible / Not tested
5. Two point discrimination - Possible / Not possible / Not tested
6. Sensory in attention - Possible / Not possible / Not tested

Cerebellar sings

Titubation or head nodding – Present/ Absent

Contracture – Present/ Absent

Under physiotherapy - Yes / No

If yes - Period -
Duration -
Frequency/ day -

INVESTIGATIONS AND OTHER ASSESSMENT TOOLS (IF ANY)

STHULA ROGA VINISCHAYA (PROVISIONAL DIAGNOSIS)

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VYADHI VISLESHANA (ANALYSIS OF CASE)

ANUPASAYA-

A) Dosha –
B) Dooshya –
C) Desa – Deha –
Bhoomi –
D) Balam – Rogam –
Rogi -
E) Kalam- Kshanadi –
Vyadhyavastha -
F) Agni -
G) Prakrithi -
H) Vaya -
I) Satwa -
J) Satmyam -
K) Ahara – Abhyavaharana-
Jarana –

Samprapthi

ROGA VINISCHAYA (DIAGNOSIS)

UPASAYA-

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UPADRAVA-

CHIKITSA(TREATMENT)

Sootra-

Oushada-

Pathya –

Apathya –

Internal medicines-

Procedures –

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KARYAPHALA (IMPROVEMENTS NOTED)

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REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur-680596

Ayurveda Vachaspati – Agada Tantra
(M.D. (Ayurveda)- Toxicology and Forensic Medicine)

Course Code 258

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Vachaspati – Agada Tantra (M.D. (Ayurveda)- Toxicology and Forensic Medicine)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Subjects

Given under curriculum clause no.2.10

The concept of health care counseling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, completion works, seminars, paper presentations, group discussions, assignments, clinical/ lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

M.D./M.S.-AYURVEDA
PRELIMINARY PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours: 200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design

g. Collection of the data
h. Analysis of data.
i. Generalization and interpretation, evaluation and assessment of hypothesis.
j. Ethical aspects related to human and animal experimentation.
k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.

4. Scientific writing and publication skills.
a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
b. Different types of referencing and bibliography.
c. Thesis/Dissertation: contents and structure
d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

5. Classical Methods of Research.
Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati Aushadhi-yog Parikshana Paddhati

Swastha, Atura Pariksha Paddhati

Dashvidha Parikshya Bhava

Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.

7. Different fields of Research in Ayurveda
Fundamental research on concepts of Ayurveda
a. Panchamahabhuta and tridosha.
b. Concepts of rasa, guna, virya, vipak, prabhav and karma
c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

8. Literary Research-
Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies. Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development
-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:
Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies
Longitudinal & Cross sectional studies
Prospective & Retrospectives studies
Cohort studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives.
National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology.
Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad

PRACTICAL

100 Marks

I. RESEARCH METHODOLOGY **Teaching Hours 120**

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and toxicology
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences. Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.
12. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trails. Published by the Pharmaceutical Press- An imprint of RPS Publishing,1 Lambeth High Street, London SE1 7JN, UK
13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA
PRELIMINARY

AGADTANTRA AVUM VIDHI VAIDYAKA

(Toxicology & Forensic Medicine)

PAPER-II **Theory 100 marks**

PART-A **50 marks**

1. Introduction to Agadatantra, its sequential development, traditional and contemporary toxicology.
2. Examination of poisons as per contemporary and Ayurvedic methods.
3. Ancient and contemporary classification of Visha.
4. Knowledge about Sthavara visha, Jangama visha and Kritrima visha, their clinical and pathological manifestations and management.
5. Garavisha and Dushi visha, signs, symptoms and management with contemporary relevance.
6. Vishajanya Janapadodhvamsaniya Roga (community health problems due to poisons) - environmental pollution, water pollution, soil pollution, air pollution etc, their features and management according to ancient and contemporary concepts.
7. Concept of Viruddhahara with contemporary views.
8. Definition of Vyavahara Ayurveda.
9. Fundamentals of Vyavahara Ayurveda. Courts of law in India and legal procedures.
10. Chathurvinshati upakrama (24 management procedures).

PART-B 50 marks

1. Introduction to Forensic medicine.
2. Techniques of pathology, pharmacology, pharmacognosy and microbiology used in toxicology.
3. Death and its medico-legal aspects (Medical Thanatology), Medico-legal autopsy, Legal procedures in clinical forensic medicine.
4. Forensic Science Laboratory:- Structure and functions
5. Introduction to Medical Jurisprudence.
6. Laws related to medical profession. Ancient practice of medical jurisprudence in india.
7. Ancient and contemporary fundamentals of medical ethics.
8. Madya visha (Alcoholism).
9. Diagnosis and Management of food poisoning.
10. General and Emergency medical management of poisoning including preparation, administration and complications of antidotes, antivenoms, antisera.
11. Management of the toxic manifestations caused by the contact poisons (paduka, vastra, abhushana, mukhalepa- vishabadha etc).
12. Diagnosis and management of dermatological manifestations of Visha.
13. Death due to poisoning, duty of physician in poisoning and cases of suspected poisoning.
14. Post mortem findings in poisoning.

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PRACTICAL **50 marks**

Contents:

Clinical Postings
Case records – 20 cases (Postmortem/ poisoning/dermatological/medico legal cases)

Distribution of marks (Practical)

Distribution of marks (Practical)

Record	20 Marks
Long Case	30 Marks
Short Case	10 Marks
Viva	25 Marks
Medical Procedure/Lab works	15 Marks
Total	**100 Marks**

REFERENCE BOOKS:

1. Useful Portion of Charak-Sushrut-Vagbhata
2. Dravyaguna Vigyan - Acharya Yadavji
3. Aushadhigunadharma Shastra - Pt Visvanath Dvivedi
4. Kriyatmat Aushada parichaya Vigyan - Pt Visvanath Dvivedi
5. Ayurvedic Vyadhi Vigyan - Acharya Yadavji Trikamji
6. Madhavanidan with Madhukosha commentary
7. Sharangadhara Samhita
8. Yogaratnakara
9. Aushadigunadharma Shastra - PtGangadhara Shastri Gune
10. Rasendracintamani
11. Rasaratna samuchhaya
12. Vishavigyan - Dr. Krishna Kumar
13. Related matter of Kautilya Artha Shastra
14. Harmekhlatantra
15. Anupana manjari
16. Ayurvedprakash
17. System of clinical Medicine - Savil
18. Forensic Pharmacy - B.M. Mhithai
19. Hand book of Forensic Medicine and toxicology - Dr. P.V. Chadha
20. Viva Forensic Medicine and toxicology - L.C. Gupta
21. Forensic Medicine and Ethics - J.P. Narena
22. Modi's Medical Jurispudence and Toxicology
23. The essentials of forensic medicine and toxicology -Dr.K.S. Narayan Reddy

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24. Medical Laws and Ethics - Dr. H.S. Mehta
25. M.R.K. Krishnan's Handbook of Forensic Medicine
26. Text book of Medical Jurisprudence and Toxicology- Dr. C.K. Parikh
27. Atlas of Forensic Medicine - Dr. Tomio Watenbe
28. Medico legal Post Mortems (Atlas) - Dr. Parikh and Others
29. Textbook of Forensic Medicine and Toxicology - Dr.V.V. Pillay
30. Textbook of Forensic Medicine and Toxicology - Dr. Karmakar
31. Textbook of Forensic Medicine and Toxicology - Dr. Singhal
32. Textbook of Forensic Medicine and Toxicology - Dr. Krishnan Vij
33. Forensic Pathology - Dr. Bernard Knight
34. Textbook of Forensic Medicine and Toxicology - Lyon's
35. Pocket picture guide to Forensic Medicine - Gower's Medical Publication
36. Forensic Medicine - Simpson Knight
37. Taylor's Principles and Practical of Medical Jurisprudence - J and A Churchis
38. Doctor and Law - Singhal
39. Textbook of Toxicology - Singhal
40. Medicine Harrison's Principal of Internal Medicine
41. Agad Tantra - Dr.Shekhar Namboodri
42. Modern Medical Toxicology - Dr. V.V.Pillay
43. Critical care toxicology - Bruent Wallace
44. Diagnosis and Management of common poisoning - Agarwal wali
45. Colour Atlas of Forensic Medicine - Govindaiah
46. Guidelines of poisons - W.H.O.
47. Doctors patients relationships - Dr.Lavekar
48. Bhavaprakasha.
49. Vishavaidya Jyotsnika - English translation By VPSV Ayurveda college, Kottakkal.
50. Lakshnamritham.
51. Toxicology, Ayurvedic perspective - VPSV Ayurveda college Kottakal
52. Text book of Agadatantra - Edited By Dr Huparikar, Dr.Joglekar
53. Agadatantra ki Pathyapustaka - Edited By Dr Huparikar, Dr. Joglekar
54. Vyavahar Ayurveda Vigyanam - Dr.Indramohan Jha (Sachchan)
55. Forensic Medicine - Dr. B. Umadathan
56. Visha Chikitsa - Dr. M. Balakrishnan Nair
57. Park Text book of Preventive and Social Medicine. - K. Park
58. Environmental Science and Biotechnology - Theory and Practice
- A.G. Murukesan &C. Rajakumari
59. Veterinary Toxicology - Dr. Satish K. Gargi
60. Guide to Drinking Water Quality (3 Volumes) - WHO Publication
61. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal, R.C. Mahajan.

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Final M.D. Ayurveda

AGADA TANTRA EVUM VIDHIVAIDYAKA

PAPER -I AgadaTantra (Ayurvedic and Contemporary Toxicology) 100 marks

1. Agada Tantra, its sequential development during Veda kala, Samhitha kala, Samgraha kala and Adhunika kala.

2. Definition of Visha, properties of visha and its comparison with madya and oja, visha samprapti, visha prabhava, visha-vega, vegantara and visha karmukata (toxicodynamic and toxicokinetic study).

3. Descriptive and comparative study of Upavisha in unison with Contemporary Toxicology.

4. Examination of poisons as per Contemporary and Ayurvedic Methods.

5. Descriptive study of sthavara visha, definition, classifications, classical signs and symptoms of poisoning including vanaspatic (phyto poison), khanija (mineral) and compound sthavara visha.

6. Study of Jangama visha and their sources (Animal poisoning and Zoonotic Diseases). Descriptive study of snakes according to ancient and contemporary knowledge. Causes of snake bite and its types. Composition of snake venom and its pharmacological actions. Signs and symptoms of envenomation and its prognostic signs. Clinical features of Vrischika (scorpion), Luta (spider), Grihagodhika (Lizard), Mushaka (rats), Alarka (dogs), Makshika and Mashaka (mosquitoes) and their pathologic manifestations including their role in the manifestation of communicable diseases.
Shanka visha and its management.Visha sankat and Visha Kanya.

7. Garavisha and Dushi visha, their varieties, signs, symptoms and management with contemporary relevance. Detailed study of Allergies including allergic manifestations in the eyes, nose, lungs and skin.

8. Detailed study of Madya visha and substances acting on the nervous system; substance abuse.(Diagnosis, Management and De-addiction)

9. Detailed study of the contemporary knowledge about vishajanya Janpadodhvansaniya roga (community health problems due to poisons - Environmental pollution, water pollution, soil

pollution, air pollution, Industrial pollutions etc. their features and management according to ancient and recent concepts.

10. Concept of Virudha aahara, Aahara visha and Satmyasatmyata in contemporary and Ayurvedic views.

11. Conceptual study:Drug interactions and incompatibility, Pharmacovigilance

PAPER- II- Visha Chikitsa Vigyan (Management Of Poisoning)

100 marks

1. Fundamental Principles for treatment of poisoning

2. General and specific treatment of different types of Sthavara visha.

3. General and specific treatment of different types of Jangama visha (animal poisons, insect poisons, snake bites and other zoonotic diseases)

4. Emergency medical management of poisoning including preparation, administration and complications of antivenoms/antisera.

5. Chaturvimsati upakrama (24 management procedures).

6. Management of Garavisha and Dushivisha. Treatment of Allergies including allergic manifestations in the eyes, nose, lungs and skin.

7. Diagnosis and Management of Drug Induced Toxicity

8. Management of the toxic manifestations caused by the contact poisons (paduka, vasthra,

abharana, mukhalepa - vishabadha etc).

9. Management of food poisoning.

10. Death due to poisoning, Duty of physician in poisoning, in cases of suspected poisoning. Post mortem findings in poisoning.

11. Extra -corporeal techniques (dialysis etc) for removal of poisons

PAPER –III Vyavahara Ayurveda Evam Vidhi Vaidyaka

100 marks

1. Definition of Vyavahara Ayurveda, its evolution in ancient and contemporary periods.

2. Personal identity and its medico-legal aspects

3. Death and its medico-legal aspects (Medical Thanatology)

4. Asphyxial deaths and its medico-legal importance.

5. Death due to starvation, heat and cold, lightening and electricity. Suspended Animation.

6. Medico-legal autopsy.

7. Injuries due to explosions, chemical and nuclear warfare.

8. Medico-legal aspects of injuries and wounds.

9. Impotence and sterility-Its medico-legal aspects. Regulations of Artificial Insemination. Medico– legal aspects of surrogate motherhood.

10. Sexual offences and perversions.

11. Medico-legal aspects of virginity, pregnancy, delivery, abortion, infanticide and legitimacy with related acts.

12. Indian Penal Code, Criminal procedure code and study of related acts like Indian Evidence Act, Pre Natal Diagnostic Test Act, Nursing Home Act, Human Organ Transplantation Act, Drugs and Cosmetic Act 1940, Narcotic drugs and Psychotropic substances Act 1985, Pharmacy Act 1948, Drugs and Magical Remedies (Objectionable Advertisements) Act 1954, Medicinal and Toilet Preparations Act 1955 and Anatomy Act etc. Any related act enacted by the government from time to time.

13. Courts and Legal procedures.

14. Forensic Science Laboratory

15. Medico legal aspects of mental illness

16. Duties and privileges of physician.

17. Structure of Central Council of Indian Medicine, its jurisdiction and functions. Code and Conducts as per the CCIM, Rules and Regulations there under.

18. Respective State Council of Indian Medicine, its structure, power, voluntary duties.

19. Doctor – patient relationship.

20. Rights and privileges of patients; Euthanasia.

21. Professional secrecy and privileged communication.

22. Professional negligence and malpractice

23. Indemnity Insurance scheme.

24. Consumer Protection Act related to medical practice.

25. Ethics as in classics. Types of physicians and methods of identification, Pranabhisara and Rogabhisara Physicians, qualities of physician, responsibilities of Physicians, Chathurvidha vaidya vriti, duties of physicians towards patients, Vaidya sadvritam, Apujya Vaidya who is accepting fees, relationship with females

PAPER – IV Aushadha Yoga Vigyan

100 marks

1. Study of process for sodhana, marana and samskarana of poisonous drugs.

2. Pharmaco-dynamics of different formulations used in Agadatantra

3. Study of pharmacology and usage of antidotes as per the Ayurvedic and contemporary science.

4. Fundamentals of pharmaceutics according to Ayurvedic and contemporary point of view.

5. Chemical, analytical, laboratory examination of poisons and suspicious substance.

6. Introduction of different instruments /equipments used in the examination of poisons.

7. Introduction to Clinical toxicology

8. Introduction to Experimental toxicology

9. Introduction to Toxico – genomics

10. Survey and study of the traditional and folklore vishachikista sampradaya

11. Familiarity to the following formulations:

Kosathakyadi yavagu, Chandrodaya Agada, Dushivishari Agada, Moorvadi Choornam,

Panchavalkadi Agada, Vilwadi Agada, Dasamgam Agadam, Sireeshabeejadi Gutika, Padmaka Agadam, Lodhra sevyadi Agadam, Ksharagadam, Ajeya Agadam, Ajitha agadam, Sarvakarmuka agadam, Kalyanaka Ghritam, Parantiadi tailam, Pankti prasoonadi ghritam, Neeli karanjadi Agadam, Neelidaladi Ghritam, Hinguadi gulika, Tarunabhaskaram Gulika, Mrityunjayam gulika, Nabhinirvishadi gulika, Garudanjanam, Dasabeejanjanam, Jeevaraksha gulika, Sigrupunarnavadi lepam, vishahari leham

Content of Practical/Demonstration

1. Identification of specimens models and equipments of toxicological and jurisprudence importance.

2. Practical training in postmortem examination (10 cases)

3. Regular clinical postings in the Agadatantra OPD / IPD

4. Medico-legal cases (20 cases)

5. Chemical Identification of various acids, alkalies, alcohols –Hydrochloric acid, Nitric acid, Sulphuric acid, Ascorbic acid, Sodium Hydroxide and Potassium Hydroxide

6. Detection of minerals Copper, Mercury, Lead, Arsenic and their compounds.

7. Physical and Chemical analysis of Dattura, Karaveera, Vatsanabha, Jayapala, Arka and Bhallataka with Microscopy, powder microscopy, TLC, solvent extraction, detection of Phenol, tannins etc. (10 studies)

8. Detection of human blood, hair, semen and other biological secretions of Forensic importance.

9. Herbarium of 15 sthavara vishas and 10 agadas.

Practical

Case Presentation	20 Marks
Spotting	20 Marks
Dissertation Presentation	10 Marks
Daily work book (Log book)	05 Marks
Teaching & Communication Skill	10 Marks
Record	10 Marks
Viva	25 Marks
Total	**100 Marks**

Reference Books:-

1. Useful Portion of Charak -Sushrut -Vagbhata
2. Dravyaguna Vigyan - Acharya Yadavji
3. Aushadhigunadharma Shastra - Pt Visvanath Dvivedi
4. Kriyatmat Aushada parichaya Vigyan - Pt Visvanath Dvivedi
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59. Veterinary Toxicology - Dr. Satish K. Gargi

60. Guide to Drinking Water Quality (3 Volumes) - WHO Publication

61. A short Text Book of Medical Entomology - H.S. Bhatti, R. Sehgal, R.C. Mahajan.

62. Kriyakoumudi - Kuttikrishna Menon VM

2.11 No: of hours per subject

Given under Clasue No. 2.10

2.12 Practical training given

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.

2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.

3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.

4. For approving the title a scrutiny Committee shall be constituted by the University.

5. The University should display the approved synopsis of dissertation on their website.

6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.

7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.

9. The dissertation shall contain the methods and data of the research carried out bythe student on the problem selected by him and completed under the guidance of the teacher approved by the University.

10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary

conclusion, and references cited in the dissertation should be suitable for publication

11. The dissertation shall consist of not less than forty thousand words.

12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.

13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.

14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.

15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.

16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.

17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.

18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

19. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
20. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor-*AYU*, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, *Gujarat Ayurved University*, www.ayujournal.org/
    Chief Editor Prof. P.K. Prajapati
    Director, IPGT & RA, Gujarat Ayurved University, Jamnagar
21. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha
    ccras*.nic.in/publication/****Journal****ofResearchinAyurvedaSiddha.htm*
    Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
22. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
23. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
24. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.

25. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
26. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
27. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
28. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
29. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
30. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
31. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
32. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
33. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
34. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
35. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
36. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

Logbook Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3. EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.
2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.
3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

PG Ayurveda Preliminary Examinations

(Agadathantra Evum Vidhivaidyaka)

Paper II-Moulika Sidhantha

Time: **3**Hrs
Max.Marks:**100**

Answer all questions

Essay 20 Marks

1. Enlist sthavara visha adhishtanas with suitable examples and write the lakshanas produced by each adhishtanas

Short Essay (8x10 Marks =80)

2. Explain the signs and management of vishadooshitha bhoomi according to ancient and recent methods
3. Explain dooshivisha lakshana and chikitsa along with its contemporary relevance
4. Explain examination of a witness in a court of law
5. Explain alarka visha lakshana,samprapthi and chikitsa
6. Describe the duties of a registered medical practioner
7. Explain the methods of elimination of poison by excretion
8. Explain the constitution, service and functions of forensic science laboratory
9. Explain the signs and symptoms of acute arsenic poisoning and point out the difference between cholera

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(MODEL QUESTION PAPER)

Final Year PG Ayurveda Degree Examination

(Agadathantra Evum Vidhivaidyaka)

Paper I- Agadathantra
(Ayurvedic and Contemporary Toxicology)

Time: 3 hrs

Max Marks: 100

Answer all questions

Essay

20 Marks

1. Explain in detail the definition, signs &symptoms, contemporary relevance and management of garavisha

Short Essay

(8x10 Marks =80)

2. Explain the action of visha gunas in the light of properties of snake venom as per modern toxicology

3. Explain the features and management of visha dooshitha jala as per ancient and recent concepts

4. Explain the concept of virudhahara in contemporary and Ayurvedic views

5. Explain vrischika damsha lakshna and chikithsa as per Ayurvedic classics

6. Enumerate abortifacient poisons.Explain any two among them

7. Explain asubha kala,desha,sakuna and dootha lakshanas in sarpadamsa according to

Ayurvedic classics and malayala vishachikitsa grandhas

8. Compare alarka visha samprapthi along with the pathogenesis of rabies

9. Explain the diagnosis of poisoning in a dead person according to modern toxicology

(Model Question Paper)

Final Year PG Ayurveda Degree Examinations

(Agadathantra Evum Vidhivaidyaka)

Paper II - Visha Chikitsa Vigyan
(Management of Poisoning)

Time : 3 hrs

Max marks : 100

• Answer all questions

Essay

20 Marks

1. Elaborate the detailed management of garavisha janya dooshivisha with contemporary applications

Short essays

(8x10 Marks = 80)

2. Explain management of viruddha ahara with examples of food combination

3. Explain the management of Kupeelu poisoning and Gunja poisoning

4. Mention clinical features and treatment of a viper bite

5. Explain preparation, administration and complications of antivenom

6. Enumerate Clinical features of lead poisoning and its management

7. Explain Gara visha in general and its detailed management

8. Explain the procedures arishtabandhana, prachana and achooshana

9. Explain Dasavidha chikithsa in lutha visha

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(Model Question Paper)

Final Year PG Ayurveda Degree Examinations

(Agadathantra Evum Vidhivaidyaka)
Paper III
Vyavaharayurved Evum Vidhi Vaidyaka (Forensic Medicine and Medical Jurisprudence)

Time : 3 hrs

Max marks : 100

• Answer all questions

Essay

20 Marks

1. Describe classification of Injuries and explain in detail medicolegal aspects of wounds

Short essays

(8x10 Marks = 80)

2. Describe the process of identification of an unknown dead body.

3. Define Rape and explain in detail examination of a rape victim.

4. Describe Medical evidence in detail with its classification.

5. Explain modes of death and organ transplantation.

6. Mention structure of CCIM its jurisdiction and functions

7. Explain the Medical Ethics as in classics and importance of consent in medical practice

8. Discuss professional negligence and malpractice.

9. Explain Asphyxial deaths and its medicolegal importance.

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(Model Question Paper)

Final Year PG Ayurveda Degree Examinations

(Agadathantra Evum Vidhivaidyaka)
Paper IV
Aushadha Yoga Vijnan

Time: 3 hrs

Max Marks: 100

.Answer all questions

Essay

20 Marks

1. Explain the classification, types and action of antidotes with suitable examples according to modern Toxicology. Explain prathivisha and prathyoushadha as per agadatantra

Short essays

(8X10 Marks = 80)

2. Explain the qualitative colour tests using in the detection of poisons

3. Explain the therapeutic action of moorvadi choorna in garavisha

4. Explain thin layer chromatography in the detection of poisons

5. Mention the ingredients, methodology and application of tharuna bhaskara gulika

6. Explain the chemical tests using in the detection of metallic poisons

7. Explain the significance of 'dharaprayoga' in vishachikitsa as per malayala visha chikitsa grandhas

8. Explain the action of panchavalkaadi agada in mandali damsa vrana

9. Explain the importance of 'oothu chikitsa' (blowing of medicinal air) as per keraleeya visha chikitsa.

3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10.

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention

3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research

REGULATIONS 2016

Syllabus

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Kayachikitsa
(M.D. (Ayurveda)- Medicine)

Course Code 259

(2016-17 Academic year onwards)

2016

2 COURSE CONTENT

2.1 Title of course

Ayurveda Vachaspati – Kayachikitsa (M.D. (Ayurveda)- Medicine)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2..4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration:

3 years

2.6 Subjects

Given under clause 2.10

2.7 Total number of hours

Given under clause 2.10

The concept of health care counseling shall be incorporated in all relevant areas

2.8 Branches if any with definition

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Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical/ lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee

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(AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.
   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati
   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti
6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda
   Fundamental research on concepts of Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-
   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

   concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
   Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

   Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.
    Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

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11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional

studies Prospective &

Retrospectives studies Cohort

studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

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PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non

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random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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   Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
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   edition
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7. Kanai L.Mukherjee. Clinical Pathology:,Medical Laboratory Technology Vol. I.Tata McGrawHill 1996, New Delhi.
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9. Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I.Churchill Livingstone (P) Ltd, New Delhi.2000.
10. Satyanarayanan,U. Essentials of Biochemistry, Books and allied(P) Ltd.2002
11. Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.
12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

Research methodology:

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2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
3. Altick and Fensternmaker. (2007).*The Art of Literary Research*. 4th ed. W. W. Norton. Castle, Gregory. *Blackwell Guide to Literary Theory*. Blackwells,
4. Bowling, A. (2002). Research Methods in Health (2nd ed). Buckingham: Open
University Press.
5. Day R.A. How to write a scientific paper. Cambridge University Press.
6. Cooray P.G. Guide to scientific and technical writing.
7. Deepika Chawla and Neena Sondhi. (2011). Research Methods- Concepts and cases. New Delhi: Vikas Publishing House.
8. Greenhalgh, T. (2006) How to Read a Paper: The Basics of Evidence-Based
Medicine. (3rd ed)
Blackwell
9. Kothari- CR (2004). Research Methodology- Methods and Techniques (Second Revised Edition). New Age International Publishers- New Delhi.
10. Kumar, R. 2005. *Research Methodology: a Step-by-Step Guide for Beginners, 2nd*
ed. Thousand Oaks, CA, London: Sage
Publications.
11. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint
of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

Drug research and development:

1. RICK NG, (2009). DRUGS- from discovery to approval. John Wiley & Sons,

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Inc., Hoboken, New Jersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061 110 3 (NLM Classification: WB 925).
3. Jagdeesh, Sreekant Murthy, Gupta, YK and Amitabh Prakash Eds. Biomedical Research (From Ideation to Publication) (2010). Wolters Kluwer/ Lippincott Williams and Wilkins.
4. WHO Guidelines on Safety Monitoring of herbal medicines in pharmacovigilance systems. (2004). WHO- Geneva. ISBN 92 4 1592214.
5. Natural products isolation. (2006) 2nd ed. / edited by Satyajit D. Sarker, Zahid Latif, Alexander I. Gray. (Methods in biotechnology; 20). Includes bibliographical references and index. Humana Press Inc. ISBN 1-58829-447-1 (acid-free paper) – ISBN 1-59259-955-9 (eISBN)
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7. OECD (2000) Guidance Document on Acute Oral Toxicity. Environmental Health and Safety Monograph Series on Testing and Assessment No 24.
8. OECD Guideline for the Testing of Chemicals – Repeated Dose 90-day Oral Toxicity Study in Rodents, 408, 1998. http://browse.oecdbookshop.org/oecd/pdfs/free/9740801e.pdf(latest version)
9. OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring, 1998.http://www.oecd.org/document/63/0,2340,en_2649_34381_2346175_1_1_1_1,00.html
10. ICH Harmonised Tripartite Guideline (2000). Maintenance of the ICH Guideline on Non-clinical Safety Studies for t he conduct of Human Clinical Trials for Pharmaceuticals M3 (R1).
11. Ghosh M.N.: Fundamentals of Experimental Pharmacology, *Scientific Book Agency. Bombay.*\
12 Jaju B.P.: Pharmacological Practical Exercise Book, *Jaypee Brothers, New Delhi.*
13 Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan, New Delhi*
14 Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondicherry.*

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Biotechnology and Bio-informatics:

1. Angela M. Meireles A (2009). Extracting Bioactive compounds for food products.
   Theory and applications. CRC- Press Taylor and Francis Group.
2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
3. Chikhale, N.J. and Virendra Gomase, Bioinformatics- Theory and Practice, Publisher: Himalaya Publication House, India; 1 edition (July, 2007) ISBN-13: 978- 81-8318-831-9
4. Lesk, A.M. Introduction to Bioinformatics Oxford 2002.
5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005
6. Setubal J. C and J. Meidanis, Introduction to Computational Molecular Biology, PWS Publishing Company, 1997.
7. http://www.iitb.ac.in/~crnts.
8. http://www. zygogen.com.
9. http://www.dsir.nic.in/reports/tifp/database/metallo.pdf.
10. www.consort-statement.org
11. www.strobe-statement.org
12. www.icmr.nic.in

Clinical Evaluation:

1. CDSCO, Good Clinical Practices For Clinical Research in India, Schedule Y (Amended Version – 2005),http://cdsco.nic.in/html/GCP1.html
2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian
   Council of Medical Research- New Delhi.
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   Working Group. *Journal of Biopharmaceutical Statistics.* 16: 275–283; 2006
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5. Gupta, SK Ed. Basic Principles of Clinical Research and Methodology (2007).
   Jaypee Brothers- new Delhi
6. ICH Harmonised Tripartite Guidelines for Good Clinical Practices.(1997)- Quintles- Published by Brookwood Medical Publications. Richmond, Surrey. United
   Kingdom.
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   of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5

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9. William C. Scheffer Introduction to Clinical Researchs

Medical Statistics:

1. Armitage, P. and Berry, G. (1994) Statistical Methods in Medical Research (3rd ed).
   Blackwell Science.
2. Armitage P, Berry G, Matthews JNS: *Statistical Methods in Medical Research*. Fourth edition. Oxford, Blackwell Science Ltd; 2002
3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford
   University Press.
4. Bradford Hill – Basic Medical Statistics
5. Cambell, M.J. and Machin, D. (1993) Medical Statistics: A Common Sense Approach (2nd ed). Chester: Wiley.
6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi–1.
7. Gupta S.P. - Fundamentals of statistics, Sultan Chand. Delhi.
8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers
    Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences.
    Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.
12. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trails. Published by the Pharmaceutical Press- An imprint
    of RPS Publishing,1 Lambeth High Street, London SE1 7JN, UK
13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA PRELIMINARY

KAYACHIKITSA
(Genral Medicine)

PAPER-II **Theory- 100 marks**

PART A **50 marks**

1. Understanding of fundamental concepts of Kayachikitsa like Vriddhi and Kshaya of Dosha, Dushya, Mala with Amshaamsha Kalpana. Srotodushti, Khavaigunya, Agni, Ama (Saama and Nirama Dosha, Dhatu & Mala). Aavarana, Rogamarga, Ashayapakarsha, Dosha Gati, Kriyakala. Aushadha Sevana Kala, Anupana, Pathya-Apathya and their scientific relevance during health and disease.
2. Detailed knowledge of Rogi Roga Pariksha including detailed history taking and systemic examination of patient. Clinical implementation of Dwividha Pariksha, Trividha Pariksha, Chaturvidha Pariksha, Panchavidha Pariksha, Shadvidha Pariksha, Ashtavidha Pariksha, Dashvidha Parikshya Bhavas and Prakrityadi Dashvidha Pariksha.
3. Principles of Kayachikitsa in disease management including Shodhana, Shamana and Naimittika Rasayana.
4. Introduction of the basic principles of Modern medicine, Homeopathy, Unani, Siddha, Tibetan Medicine, Yoga and Naturopathy and their relevance in light of the basic principles of Ayurvedic medicine.

PART B **50 marks**

1. Chikitsa Siddhanta of Pranavaha, Annavaha, Udakavaha, Rasadi Dhatuvaha, Malavaha & Manovaha Srotovikara.

2. Emergency medicine: Acute Severe Asthma, pulmonary oedema, myocardial infarction, cerebro-vascular accidents, water and electrolyte imbalance, haemorrhage, syncope, seizure, coma, hyperpyrexia, hypertensive encephalopathy.

3. Knowledge of conducting various medical procedures like infusions, tapping, lumbar puncture, Ryle's tube insertion, catheterization, tractions, water seal drainage, Cardio

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Pulmonary Ressucitation.

4. Basic knowledge of underlying principles of ECG, TMT, echo cardiography, vascular doppler studies, EEG, EMG, X-Ray, USG, CT scan, MRI, PET and their interpretation.

5. Knowledge of common Ayurvedic formulations and preparations used in treatment:
Churna- Triphala, Sitopaladi, Lavanbhaskara, Hingvashtaka, Avipattikara, Gangadhara, Shaddharana, Sudarshana, Panchasakara, Ajmodadi.
Kashaya- Dashamula, Rasnasaptaka, Asanadi, Pathyadi, Phalatrikadi, Punarnavashtaka, Gojivhadi, Mahamanjishthadi, Drakshadi Kashaya. **Asavas-Arista-** Amritarishta, Kanakasava, Chitrakasava, Saraswatarishta, Ashwagandharishta , Chandanasava.
Vati- Sanjivani, Chandraprabha, Agnitundi, Chitrakadi, Khadiradi, Vyoshadi, Shankha Vati,ShivaGutika.
Guggula-Kalpana-Triphalaguggula,Kaishoraguggula,Trayodashangaguggula, Simhanadaguggula, Yogarajaguggula, Gokshuradi guggula, Kanchanaraguggula.
Rasaushadhi- Tribhuvanakirti Rasa, Arogyavardhini Rasa, Shwasakuthara Rasa, Rasamanikya Rasa, Smritisagara Rasa, Lakshmivilasa Rasa, Sutshekhara Rasa, Pravala Panchamrita-Parpati,Hemagarbhapottali-Rasa.
Taila- Mahanarayana Taila, Pindataila, Prasarinyadi Taila, Ksheerabala Taila, Brihat Saindhavadi Taila, Panchaguna Taila, Amritadi Taila, Marichyadi Taila, Mahamasha Taila.
Ghrita- Mahatriphaladi Ghrita, Brahmi Ghrita, Panchtikta Guggulu Ghrita, Sukumara Ghrita, Dadimadya Ghrita, Kantakari Ghrita, Kalyanaka Ghrita.
Lehya- Chyavanaprasha Avaleha, Kushmanda Avaleha, Ashwagandha Avaleha, Agastya Hareetaki Rasayana, Drakshavaleha, Vasavaleha, Amrita-Bhallataka Rasayana

PRACTICAL **100 marks**

Content:-

Daily hospital duties in OPD, IPD and casualty
Bed-side case taking – 25 patients

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Distribution of marks (practical):

Record	20
Long Case	30
Short Case	10
Viva	25
Medical Procedure/Lab work	15
Total	**100**

REFERENCE BOOKS-

Charak Samhita	-Cakrapanidutta commentry
Sushrut Samhita	-with all available commentaries.
Ashtang Samgraha	-Indu commentary
Ashtang Hridaya commentry	-Arundutta and Hemadri
Cikitsadarsha	- Pandit Rajesvardutta Shastri
Kayachikitsa	- Ramaraksha Pathak
Rog Pariksha Vidhi	- Priyavrat Sharma
Panchakarma Vigyan	- Haridas Sridhar Kasture
Ayurved Nidan Chikitsa Siddhanta	- Prof. R.H.Singh.
Kayachikitsa Vol. I-IV.	- Prof. Ajay Kumar

Davidson's Principles and Practice of Medicine.
API Text Book of Medicine.
Harrison's Text Bok of Medicine. Cecil Text Book of Medicine. Relevant texts of concerned subjects.

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KAYACHIKITSA

Theory – 400 Marks(100 Each)
Practical and Viva voce – 100 Marks

PAPER – I **100 Marks**

FUNDAMENTALS OF KAYACHIKITSA

1. Rogi-Roga Pariksha: Nidan Panchak, Trividha pariksha, Ashtavidhapariksha, Dashvidhapariksha in the light of recent advances. Clinical methods- Detailed history taking and patient examination, Shadang pariksha (Systemic examination) as per ayurveda and recent advances.
2. Interpretation of investigations: ECG, Echo cardiography, TMT, Spirometry, X-ray, USG, CT-Scan, MRI, EEG, EMG, etc in different pathological conditions.
3. Detailed knowledge of Principles of Chikitsa in Ayurveda. Classification of Rogas, Types of Chikitsa. Principles and practices of Rasayana and Vajikarna.
4. National Health Programmes/ NRHM and prospective role of Ayurveda services and therapeutics in them with special reference to Kayachikitsa.
5. Medical ethics, Common laws and regulations applicable to clinical practice.
6. Elaborate knowledge of undertaking common medical procedures like Ryle's tube feeding, tapping, transfusions, catheterization, tractions, nebulizations, lumber puncture, etc.
7. Ayurveda Dietetics: Importance of Pathya, Apathya and Anupana.
8. Drug-drug interactions and adverse drug reactions, latrogenic disorders.

PAPER – II **100 Marks**

SAMANYA ROGA CHIKITSA

Nidana/ Chikitsa including Nidana Parivarjana, Pathya, Apathaya, Chikitsa siddhanta, Shamana, Shodhana, Panchakarma, Rasayana and Atyayika Chikitsa (Anupana, Drug/Non-drug) as per Ayurvedic and conventional therapeutics of following Srotogata vyadhi including Kshaya, Vriddhi srotodushti janya vyadis such as:

1. Pranavahasrotas: Shwasa, Hikka, Kasa, Rajayakshma, Hridroga, Parshwashoola, Urakhshata, Svarabheda.
   Cardio-respiratory system: Bronchitis, Bronchiectasis, Bronchial asthma, COPD,

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Corpulmonale, Pneumonias, Occupational lung diseases, Pulmonary tuberculosis, Congenital Heart disorders, IHD, RHD- Valvular diseases, Cardiac failures, Cardiomyopathy, Pericarditis, Endocarditis, Hypertension.

2. Annavahasrotas: Agnimandya, Ajirna, Aruchi, Amadosha, Amlapitta, Chhardi, Shoola, Grahani. Gastrointestinal disorders: GERD, APD, Malabsorption Syndrome.
3. Udakavahasrotas: Trishna, Shotha, Udararoga, water and electrolyte imbalance.
4. Rasavaha Srotas: Jwara, Amavata, Pandu, Madatyaya, Anaemias, Rheumatoid arthritis.
5. Raktavaha Srotas: Raktapitta, Kamala, Vatarakta, Kushtha, Kshudraroga, Sheetpitta, Udarda, Kotha, Visarpa, Shvitra. Haemopoeitic disorders, Bleeding and Coagulation disorders, Leukaemias, Thrombocytopenia, Disorders of Bone Marrow, Hepatobiliary disorders, Hepatitis, Cirrhosis, Cholecystitis, Liver abscess, Jaundice, Dermatological disorders, Parasitic, Infective, Allergic, Autoimmune skin disorders such as Psoriasis, Eczemas.
6. Mamsa-Medovahasrotas: Medoroga, Sthaulya, Prameha, Galaganda, Gandamala, Urustambha, Diabetes mellitus, Obesity.
7. Asthi-Majja vahasrotas: Asthikshaya, Sandhigatavata, Osteoarthritis, Osteopenia, Osteoporesis.
8. Shukravahasrotas: Such as Klaivya, Dwajabhanga, Impotence.
9. Mutravahasrotas: Mutrakricchra, Mutraghata, Ashmari,Urinary disorders: UTI, Lithiasis, ARF, CRF, Uraemia, BPH.
10. Purishvaha srotas: Atisara, Pravahika, Anaha, Adhamana, Krimi, Udavarta, Diarrhoeas, Dysentery, Ulcerative colitis, IBS, Intestinal Worm infestation.

PAPER – III **100 Marks**

VISHISHTA ROGA CHIKITSA

Comprehensive knowledge of Nidan Panchak- etiology, demography, Pathogenesis, symptomatology, complications, investigations, diagnosis and drug/non-drug management of following diseases as per Ayurveda/ Conventional therapeutics:

1. Vata-Vyadhi:- Pakshavadha, Ekangvata Ardhanga Vata, Sarvanga Vata, Ananta Vata, Gata Vata, Gridhrasi, Ardita, Akshepaka, Apatantraka, Vishvachi, Avabahuka, Avarana, Urustambha.

   Musculoskeletal disorders: Myopathies, Muscular dystrophies, Lumbago

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Neurological disorders: Neurodegenerative disorders like Alzemier's, Parkinsonism, CVA, Neuropathies, Facial palsy, G B Syndrome, Motor Neuron Diseases, Epilepsy, Sciatica.

2. Sankramakroga: Sheetala, Masoorika, Updansha, Phiranga, Gonorrhea, Chancroids, Syphilis.
3. Manasa vyadhi:- Unmada, Apasmara, Atatvabhinivesha, Mada, Moorcha, Sanyasa. Common psychiatric disorders: Classification of psychiatric ailments. Disorders of thought like Schizophrenia. Disorders of Mood like Mania, Depression. Neurosis, personality disorders, psychosexual disorders.
4. Metabolic disorders: Gout, Dyslipidaemia, Atherosclerosis, Metabolic Syndrome.
5. Endocrinal disorders: Disorders of Pituitary, Thyroid, Adrenal Medulla, Reproductive hormones.
6. Parasitic/Infective/ Communicable disorders: Shlipada, Filariasis, Vishama Jvara, Malaria, Manthara Jwara, Enteric Fever, Dengue, Chickenpox, Measles, Influenza, Kalaazar, Mumps, Rabies, Poliomyelitis, Plague, Meningitis, Encephalitis, Chikungunya, HIV/AIDs, Common worm infestations.
7. Neoplastic disorders and their management strategies. Role of ayurvedic medicines in cancer care including palliative care.
8. Autoimmune diseases: Myopathies, Rheumatic fever, SLE.
9. Common poisonings and their management like Insecticide/ Pesticide poisoning, Snake poisoning, Vegetable and chemical poisoning, Substance abuse.
10. Janapadodhvamsa Vikara:- Environmental diseases Causes, impact on human health and their management.
11. Ashtonindhataya Prusha and their clinical relevance.

PAPER – IV **100 Marks**

ADVANCES IN KAYACHIKITSA

Critical care medicine, Management of medical emergencies, ICU services, Field medical services

1. Hospital management strategies, Infrastructure, use of IT technology, essential manpower, equipment, Patient care, management and coordination with contemporary health institutions and field institutions.
2. National Health Campaigns of AYUSH and components under NRHM.

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3. Clinical Research in Kayachikitsa and its application in clinical medicines as per new evidence base in different systemic disorders.
4. New emerging health challenges and ayurvedic medicines: Chikungunya, HIV/AIDs, Swineflu, Chickenflu, Dengue, Restless leg syndrome, Sick building syndrome, Fibromyalgia.
5. Role of Ayurveda in immune-protection, immune-modulation and in management of other allergies and immunological disorders.
6. Indications and importance of Organ transplantation, Ethical and legal issues involved.
7. Knowledge of Geriatric care and terminal care medicine.
8. Basic knowledge of Gene therapy, Stem cell therapy, Genetic modeling and chromosomal disorders in different disease conditions.
9. Radio isotopes, disease and tumor markers in diagnosis and assessment of therapy.
10. Scope and methods of independent and collaborative research in kayachikitsa.
11. Disaster management strategies.
12. Application of advances in Rasayana and Vajikarana therapies.
13. Application of emerging trends in Panchakarma in medical management.
14. Physical medication and rehabilitation.

PRACTICALS - **100 Marks**

Practicals shall be held to evaluate the patient care, diagnostic and treatment expertise of the student. It should also be taken as a chance to evaluate the clinical skills.

Publication of One Scientific paper based on Thesis Research preferably in indexed journal is essential. Should have taken minimum 20 Theory and Practical classes of BAMS in concerned subject

Long Case	30
Short Case	10
Procedure	10
Teaching/Communication Skill	05

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Dissertation Presentation	05
Viva	30
Record	10
Total	**100**

Reference Books:

1. Relevant portions of Brihattrayi and Laghutrayi with commentaries
2. Cikitsadarsha - Pandit Rajeshvar Dutta Shastri
3. Kayachikitsa - Ramaraksha Pathak
4. Rog Pariksha Vidhi - Priyavrat Sharma
5. Panchakarma Vigyan - Haridas Sridhar Kasture
6. Ayurvediya Nidana – Chikitsa Siddhanta - Prof. R.H.Singh
7. Kayachikitsa Vol. 1 and 2 - Prof. R.H. Singh
8. The Holistic Principles of Ayurvedic Medicine - Prof. R.H. Singh
9. Essentials of Kayachikitsa – II, Vol. 1 - Dr. Aruna
10. Kayachikitsa Vol. I-IV - Prof. Ajay Kumar
11. Panchakarma Therapy - Prof. R.H. Singh
12. Panchakarma Illustrated - Prof. G.Shrinivasa Acharya
13. Practice of Ayurvedic Medicine (Kayachikitsa) - Prof.A.K.Tripathi
14. Nidanachikitsa Hastamalaka - Prof.R.R.Desai
15. Clinical Methods in Ayurveda - Prof. K.R. Srikantamurthy
16. Aushadhi Gunadharma Shastra - Gangadhar Shastri Gune
17. Introduction to Kayachikitsa - Prof. C. Dwarakanath
18. Samprapti lakshnanayoh Sambandhah - Prof.Sadashiv Sharma
19. Nidana Panchak - Prof.S.C.Dhyani
20. Kayachikitsa - Prof.S.C.Dhyani
21. Davidson's Principles and Practice of Medicine.
22. API Text book of Medicine
23. Harrison's Text Book of Medicine.
24. Cecil Text Book of Medicine.
25. Relevant texts of concerned subjects.

2.11 No: of hours per subject

Given under Clause No. 2.10

2.12 Practical training

Given under Clause No. 2.10

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2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary

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conclusion, and references cited in the dissertation should be suitable for publication

11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clause No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

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2.18 Prescribed/recommended textbooks for each subject

Given under Clause No. 2.10

2.19 Reference books

Given under Clause No. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha *ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm*

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064

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11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

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3 EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

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III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

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2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

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Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

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MODEL QUESTION PAPER

MD (Ayurveda Preliminary Examination)

PAPER-11 KAYACHIKITSA (Moulika Sidhanta)

Answer all questions

Time 3 Hours Maximum Marks 100

Essay **(1×20 = 20 marks)**

1.Explain srotopareeksha in comparison with systemic Examination-20 marks

Short essays **(8×10 = 80 marks)**

2.Expain the role of Dasavidhapareeksha in the diagnosis and management of disease 10 marks

3.Expain Rogamarga and write down its prognostic and therapeutic importance 10 marks

4.Write the role of rasayana in clinical immunology 10 marks

5.Write the emergency management of water-electrolyte Balance. 10 marks

6.Write Briefly on X-Ray and explain its importance in the diagnosis of respiratory diseases10 marks

7.Explain CPR 10 marks

8.Explain Vyadhikshamata and write its role in the pathogenesis and management of diseases10marks

9.Explain dasavidha langhana and its application in various diseases10 marks

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Final year P G Ayurveda Degree Examinations

Kayachikitsa (Model question paper)

Paper I– Fundamentals of Kayachikitsa

Time : 3hrs **Max marks -100**

- **Answer all Questions**

Essay **(20)**

1. Discuss the role of Ashtavidha Pareeksha in contemporary Ayurvedic clinical Examination.

Short Essays **(8 X 10 =80)**

2. Explain the role of Spirometry in COPD assessment.
3. Discuss the multidimensional utility of Rasayana therapy.
4. Explain the importance of Nidanaparivarjana in Roga chikitsa.
5. How and why medical ethics be preserved in clinical practice.
6. Discuss how Ayurveda can be helpful in National Tuberculosis Control Programme.
7. Compare the tapping methodology adopted in Modern and Ayurvedic therapy.
8. Discuss the relevance of Clinical dietetics in disease management.
9. Write any two possible Iatrogenic disorders in Modern and Ayurvedic medical fields and discuss the possible methods to prevent them.

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Final year P G Ayurveda Degree Examinations Kayachikitsa (Model Question Paper)

Paper II – Samanya Roga Chikitsa

Time : 3hrs **Max marks -100**

- **Answer all Questions**

Essay **(20)**

1. Explain the various investigations helpful in the diagnosis and assessment of Pulmonary Tuberculosis. Discuss its samprapthi and chikitsa tatva in Ayurveda.

Short Essays **(8 X 10 =80)**

2. Explain swarabheda in modern perspective. Write the management protocol.
3. Write a short note on Idiopathic Thrombocytic Purpura (ITP) and its possible Ayurvedic management.
4. Discuss the differential diagnosis and Ayurvedic management of GERD and Angina.
5. Discuss the management of Sopha in light of different organ systems involved.
6. Explain how Krimi chikitsa can be adopted in Intestinal worm Infestations.
7. Write the classification of Eczema. Discuss its Ayurvedic samprapthi and management protocol.
8. Discuss the Ayurvedic management for Osteoporosis and Explain the modern evaluation techniques used.
9. Give details on the management of Krisa Pramehi.

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Final year P G Ayurveda Degree Examinations Kayachikitsa (Model Question Paper)

Paper III – Vishishta Roga Chikitsa

Time : 3hrs **Max marks -100**

- **Answer all Questions**

Essay **(20)**

1. Explain the samprapthi and possible Ayurvedic management protocol for various movement disorders.

Short Essays **(8 X 10 =80)**

2. Discuss the Samprapthi of Demyelinating disorders. Write the Ayurvedic management.
3. Explain the role of Ayurveda in the management of Rabies.
4. Discuss the influence of environmental factors in the pathogenesis and management of a disease.
5. Discuss how Ayurveda can be a helping hand in Cancer Care.
6. Explain Ayurvedic management for SLE in terms of Samprapthi vighatana.
7. Discuss the understanding of common thyroid disorders in Ayurvedic view with its line of management.
8. Explain how Unmada chikitsa is adopted in the management of Schizophrenia.
9. Compare the modern and Ayurvedic view on Lumbago Sciatica Syndrome with its general management principles.

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Final year P G Ayurveda Degree Examination

Kayachikitsa (Model question Paper)

Paper IV – Advances in Kayachikitsa

Time : 3hrs **Max marks -100**

- **Answer all Questions**

Essay **(20)**

1. Discuss the need to constitute a well designed patient care system in Ayurveda. Write the steps to be taken for its planning and implementation.

Short Essays **(8 X 10 =80)**

2. Discuss the scope of collaborative research in the area of Life style disorders.
3. Explain the role of Ayurvedic medicines in Immune protection.
4. Explain how Ayurvedic management is helpful in Geriatric care.
5. Discuss the possible advances in Ayurvedic management for male infertility.
6. Explain the role of Physical medication and rehabilitation in Neuro degenerative disorders.
7. Discuss the role of 'AYUSH' in community health care system.
8. Explain the steps taken to manage a sudden outbreak of Dengue fever in Kottayam, Kerala.
9. Discuss the possibility of Rasayanas in Neuro-Psychiatric disorders.

3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams

Given under clause 2.10

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3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

10. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

11. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

12. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

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5.ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

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(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

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(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple

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4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

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Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

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Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

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Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research

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REGULATIONS 2016

Syllabus

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Panchakarma

(M.D. (Ayurveda)- Panchakarma)

Course Code 260

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Vachaspati – Panchakarma (M.D. (Ayurveda)- Panchakarma)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Subjects

Given under curriculum clause no.2.10

The concept of health care counseling shall be incorporated in all relevant areas

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2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative

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f. Sample design
g. Collection of the data
h. Analysis of data.
i. Generalization and interpretation, evaluation and assessment of hypothesis.
j. Ethical aspects related to human and animal experimentation.
k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.

4. Scientific writing and publication skills.
a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
b. Different types of referencing and bibliography.
c. Thesis/Dissertation: contents and structure
d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

5. Classical Methods of Research.
Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati
Aushadhi-yog Parikshana Paddhati

Swastha, Atura Pariksha Paddhati

Dashvidha Parikshya Bhava

Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.

7. Different fields of Research in Ayurveda
Fundamental research on concepts of Ayurveda
a. Panchamahabhuta and tridosha.
b. Concepts of rasa, guna, virya, vipak, prabhav and karma
c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

8. Literary Research-
Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

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Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.

Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional studies

Prospective & Retrospectives studies

Cohort studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

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PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non

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random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	LIST OF PRACTICALS
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVDA PRELIMINARY

PANCHKARMA
(Five Therapeitic proedure)

PAPER-II

PART A **Theory- 100 marks 50 marks**

1. Chikitsa and its classifications; Antah-Parimarjana and Bahir-Parimarjana Chikitsa
2. Principles of Chikitsa, Kriyakal, Shadvidha and Dvividha Upakrama and role of Panchakarma therein.
3. Applied aspects of Trividha, Shadvidha, Ashta Vidha and Dasha Vidha Pariksha.
4. Applied anatomy and physiology of cortex, cranial and peripheral nerves. Methods of physical examinations of central nervous system: sensory system, motor examination-muscle power and tone, superficial and deep reflexes, difference of upper and lower motor neuron lesions. Tremors and coordination.
5. Functions of various single muscles and groups of muscles, applied anatomy and physiology of joints. Methods of examination of locomotor system. Differential diagnosis of Amavata, Vatarakta and Sandhivata. Examination of lumbar and cervical disorders including Gridhrasi (sciatica) and Vishvachi (Brachial neuralgia).

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6. including Gridhrasi (sciatica) and Vishvachi (Brachial neuralgia).
7. Applied anatomy and physiology of cardiovascular and respiratory systems, functions of capillaries and its permeability. Methods of examination of respiratory and cardiovascular system. Interpretation of spirometry and ECG findings.
8. Knowledge and method of examination of various skin lesions.
9. Applied anatomy of stomach, small intestine and large intestine. Detailed examination of gastro-intestinal system.

PART B **50 marks**

1. Definition of Karma. Trividha Karma for Shodhana.
2. Importance of Panchakarma in health and disease.
3. Indications and contraindications for Shodhana. Applied aspects of Koshtha and Agni.
4. Importance of Purva and Pashchata Karma in Shodhana. Parihara Vishaya for Panchakarma.
5. Samsarjana Krama. General knowledge of various Aushadha and Ahara Kalpana used for Panchakarma.
6. Areas of research in Panchkarma.
7. Knowledge of equipments and instruments used in Panchkarma in ancient times and the possible modifications therein now.
8. Knowledge of quality standards of NABH (National Accreditation Board of Hospitals) for Ayurveda, guidelines for establishment and management of eco-friendly Panchkarma theatre including management of biomedical waste.

PRACTICAL **100 marks**

1. Duty in Panchakarma ward and theatre.
2. Performance of 5 Cases each of Snehana, Svedana, Vamana, Virechana, Basti and Nasya with maintaining of detailed record.
3. Record of detailed examination of 25 patients treated with Panchakarma and effects observed thereon.

Distribution of marks (practical):

Record	20
Long Case	30
Short Case	10
Viva	25
Medical Procedure/Lab work	15
Total	**100**

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REFERENCE BOOKS:

1. Charak Samhita with commentary of Ayurved Dipika by Chakrapanidatta and Jalpakalpa taruby Gangadhara
2. Sushrutha Samhita with the Nibhandha Samgraha commentary of Dalhana and Nyayachandrika panjika of Gayadasa on nidansthana
3. Ashtang Hridaya with Sarvanga sundara and Ayurved rasayana commentaries
4. Ashtanga Sangraha with Shashilekha commentery
5. Bhela Samhita
6. Kashyapa Samhita
7. Bhavaprakasha of Bhavamishra
8. Sharangadhara Samhita
9. Vangasen
10. Gadanigraha
11. Ayurvediya Panchkarma chikitsa — Dr Mukundilal Dwivedi
12. Panchkarma Vigyan — Dr Haridas Shreedhar Kasture
13. Illustrated Panchkarma — Dr.G Srinivasa Acharya
14. Ayurveda-Principles and Practice of Panchakarma — Dr. Mandip and Dr Gurdip Singh
15. The Panchkarma Treatment of Ayurved With Kerala Specialities — Dr. T.L. Devaraj
16. Panchkarma Therapy — Dr. R.H. Singh
17. Principles and practice of vasti — Dr. Vasudevan Nampoothiri and Dr. L. Mahadevan
18. Claiton's Physiotherapy
19. Teddy's Physiotherapy
20. Guyton's Physiology
21. Harrison's Principles of Internal Medicines

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Final M.D. Ayurveda

PANCHKARMA

Theory – 400 Marks (100 each)
Practical and Viva Voce- 100 Marks

PAPER –I **100 Marks**

PURVA KARMA-SNEHANA AND SVEDANA

INTRODUCTION:

1. Detail knowledge of Shadupakram and relation of Shodhan with it
2. Panchkarma in Ashtanga Ayurved and Significance of Shodhana
3. Ama and Shodhana, benefits of shodhana, Samikshya Bhavas in Shodhana,
4. Importance of Pachana prior to Snehana, methods, drugs, duration and dose for Pachana, samyak Lakshana of Pachana

SNEHANA:

1. Etymology and definition of Sneha and Snehana
2. General considerations about Snehana
3. Classifications of Sneha, Sneha-Yoni, detailed knowledge of four types main Sneha-Ghrita, Taila,Vasa and Majja with their characteristics, importance and utility, various aspects of Uttama Sneha
4. Properties of Snehana and Snehopaga Dravya and their interpretation.
5. Effects of Snehana
6. Sneha Kalpana, various types of Sneha Paka with their utility
7. Indications and contraindications of Snehana
8. Classification of Snehana: Bahya and Abhyantara Snehana
9. Bahya Snehana and Bahir-Parimarjana, utility and importance of Bahya Snehana
10. Classification of Bahya Snehana Methods, indications, contraindications, specific utility of the followings Abhyanga, Mardana, unmardana, Padaghata, Samvahana, Udvartana/Utsadana, Udgharshana, Avagaha, Pariseka, Lepa, Pralepa, upadeha etc. Various types of lepa having cosmetic values along with the drugs and methods; Ayurveda face pack; lepa for cosmetic problems such as tilakalak, neelika, nyaccha, mukha dushika etc with drugs and methods. Gandusha, Kavala; Karna and Nasa Purna, Akshi Tarpana; Murdhni Taila: Shiro-abhyanga, Shirodhara, Siro Pichu and Siro Basti, Shiro Lepa (Talapotichil), Talam and Takradhara etc.

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11. Knowledge of digestion and metabolism of fat: absorption of fatty substances through skin; types of skin like dry, moist etc and their Ayurvedic management.
12. Karmukata of Abhyantara and Bahya Snehan
13. Knowledge of different contemporary massage techniques
14. Abhyantra Snehana: Definition of Brimhnartha, Shamanartha and Shodhanartha, method and utility of Brimhanartha and Shamanartha Snehana; difference between Shamanartha and Shodhanartha Snehana
15. Methods of Abhyantara Snehana
16. Shodhanartha Snehana: Acchapana and Vicharana, Utility and various methods of Sadyasnehana, Avapidaka Sneha
17. Matra of Sneha : Hrasiyasi, Hrasva, Madhyama and Uttama Matra with their indications, specific utility of Ghrita, taila, vasa and majja; Anupana of Sneha along with justification and their role in the drug action.
18. Need and method of Rukshana before performing Snehana in specific conditions and Samyak Rukshana Lakshana
19. Shodhananga Snehana Vidhi and methods of fixation of dose
20. Diet and Pathya during Snehana
21. Observation of sneha Jiryamana, Jirna and Ajirna Lakshana
22. Samyak, Asnigdha and Atisnigdha Lakshana of Snehana
23. Sneha vyapat and their management
24. Pariharya vishaya and Parihara Kala

SVEDANA

1. Etymology and definition of Svedana
2. General considerations about Svedana
3. Properties of Svedana and Svedopaga Dravya
4. Indications and contraindications of Svedana
5. Various classifications of Sveda and Svedana
6. Detailed knowledge of four types of Sveda of Sushruta with their utility.
7. Hina, Mridu, Madhya and Mahana Sveda; Ekanga and Sarvanga sveda with their utility.
8. Utility and method of each of 13 types of Saagni and 10 types of Niragni Sveda
9. Shodhananga and Samshamaniya Sveda
10. Methods to protect the vital organs (varjya anga) during Svedan Procedures.
11. Detailed knowledge about Utility of below mentioned Svedan procedures:- Patrapinda Sveda, Shashtika Shalipinda Sveda, Churna Pinda Sveda, Jambira Pinda Sveda, Dhanya Pinda Sveda, Kukkutanda Sveda, Anna lepa, Valuka Sveda, Ishtika Sveda, Nadi Sveda, Bashpa Sveda, Kshira bashpa Sveda, Avagaha Sveda, Parisheka Sveda, Pizichil, Dhanyamla Dhara, Kashaya Dhara, Kshira Dhara and Upanaha Sveda
12. Avasthanusari Svedana in various disorders
13. Samyak, Ayoga and Atiyoga Lakshana, Sveda Vyapat and their management.
14. Diet and regimens during and after Svedana
15. Karmukata of Svedana; kleda and sveda; pathophysiology of sweat and sebum; fat metabolism and skin and its appendages; secretory and excretory function of skin; skin as sparshanendriya; various types of nerve endings in skin; effects of stimulation by touch, friction pressure and temperature etc.
16. Current sudation modalities like Sauna bath, Steam Bath, Infrared etc. along with

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their effects and mode of action, role of snehana and svedana in promotion of skin health.
17. Svedana with Kati Basti, Janu Basti and Griva Basti etc along with karmukata.
18. Study of Snehana and Svedana related portions in classics with commentaries

PAPER –II **100 Marks**

VAMANA AND VIRECHANA KARMA

VAMANA KARMA:

1. Etimology, definition and general considerations of vamana
2. Properties of Vamaka and Vamanopaga drugs
3. Knowledge and utility of important Vamaka drugs and their preparations (Vamana Yoga)
4. Avasthanusara Vamana and its utility.
5. Indications of Vamana
6. Contraindications of Vamana with reasons
7. Pachana prior to Snehana
8. Detailed knowledge and method of preparation of patient with Snehana
9. Abhyanga and Svedana as Purvakarma of Vamana
10. Diet and management of gap day
11. Need of increasing of Kapha for proper Vamana, Kapha increasing diet
12. Preparation and management of Patients on the morning of Vamana
13. Administration of food articles prior to Vamana
14. Selection of Drug and time of administration; Anupana, Sahapana, dose and method of administration of Vamana and Vamanopaga preparations
15. Method of Vamana Karma, waiting period for Sva-Vamana Vega and manipulation in its absence
16. Observations prior to beginning of Vamana such as sweat on forehead, horripilation, fullness of stomach and nausea along with its pharmaco-dynamics.
17. Observation; and assistance to the patient during Vamana
18. Vega and Upavega of Vamana and its counting, observations and preservation of vomitus matter and its weighing
19. Samyak, Ayoga and Atiyoga of Vamana
20. Laingiki, Vaigiki, Manaki and Antiki Shuddhi,
21. Hina, Madhya and Pravara Shuddhi and Samsajana Krama accordingly
22. Detail knowledge of methods of Samsajana Krama &Tarpanadikrama and its importance
23. Kavala and Dhumapana after vamana
24. Management of Ayoga, Atiyoga and Vyapat of Vamana with Ayurveda and modern drugs
25. Parihara Vishaya and Kala for Vamana
26. Vamana Karmukata with Pharmaco-dynamics of Vamana
27. Study of Vamana related portions in classics with commentaries
28. Recent advances of researches on the effect of Vamana
29. Scope of research in Vamana.
30. Role of Vamana in promotion of health, prevention and treatment of diseases

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VIRECHANA KARMA

1. Etymology, definition and general considerations of Virechana.
2. Importance of Vamana and Virechana as shodhana, virechana better than Vamana.
3. Necessity of Vamana prior to Virechana.
4. Preparation of patients for Virechana after Vamana.
5. Preparation of patients directly for Virechana.
6. Properties of main Virechaka and Virechanopaga drugs, Classifications of Virechana drugs with definition, example and utility of each type.
7. Indications of virechana Karma.
8. Contraindications of Virechana with reasons
9. Utility of Virechana for the specific conditions and stages of the diseases.
10. Internal Snehana for Virechana with diet.
11. Management of 3 gap days and importance of low Kapha for proper Virechana.
12. Abhyanga and Svedana as Purvakarma of Virechana.
13. Preparation and Management of Patients on the morning of Virechana.
14. Reason for performing Virechana on empty stomach.
15. Selection of virechana Drug, Dose and time of administration; Anupana, sahapana and method of administration of Virechana and Virechanopaga preparations.
16. Method of performing of Virechana Karma.
17. Observations during Virechana, Vega and Upavega of Virechana and its counting, observations and preservation of faeces and its weighing.
18. Samyak, Ayoga and Atiyoga of Virechana.
19. Laingiki, Vaigiki, Manaki and Antiki Shuddhi of Virechana.
20. Hina, Madhya and Pravara Shuddhi and Samsarjana Krama accordingly.
21. Detail knowledge of methods of Samsarjana Krama and its importance, and Tarpana krama and its importance.
22. Management of Ayoga, Atiyoga and Vyapat of Virechana with Ayurveda and modern drugs.
23. Parihara Vishaya and Kala for Virechana.
24. Virechana Karmukata along with its Pharmaco-dynamics.
25. Applied anatomy and physiology of Gastrointestinal system related with Vamana and Virechana.
26. Study of Virechana related portions in classics with commentaries.
27. Recent advances of researches on the effect of Virechana.
28. Scope of research in Virechana.
29. Role of virechana in promotion of health, prevention and treatment of diseases.

PAPER –III **100 Marks**

BASTI KARMA AND NASYA KARMA

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BASTI KARMA

- Etymology, definition and general considerations of Basti
- Importance of Basti in Kayachikitsa and other branches of Ayurveda
- Classifications of Basti and Basti drugs
- Drugs useful in Basti
- Indications of Basti, its role at the various stages of diseases
- Contraindications of Basti with reasons
- Description of Basti yantras, Basti netra and Basti putaka and their Doshas. Modified Basti Yantra, their merits and demerits.
- Dose schedules of Niruha and Anuvasana basti

NIRUHA BASTI

- Etymology,synonyms, definition and classifications and subclassifications of Niruha Basti and detailed knowledge of each type of Niruha Basti along with indications and contraindications and benefits.
- Contents of various types of Niruha Basti, their proportions, methods of mixing basti Dravya, Niruha vasti and its relation with other shodan therapies:Relation of niruha vasti with anuvasana vast.
- Purvakarma for Niruha Basti; Pathya before, during and after Niruha Basti; all the aspects of administration of various Niruha Basti. Method of preparation of various Niruha vasti dravya;rationale behind use of various ingredients, sequential mixing and position of patient.
- Observations during and after Niruha Basti.
- Basti Pratyagamana, Samyakyoga, Ayoga and Atiyoga Lakshana and Various Vyapat of Niruha Basti and their management according to Ayurved and Modern Systems Medicines. Management during and after Niruha Basti.
- Pariharya vishaya and pariharakala.

Anuvasana Basti

- Etymology, synonyms, definition and classifications of Anuvasana Basti and detailed knowledge of each type of Anuvasana Basti along with indications and contraindications and benefits
- Various types of Ghrita and Taila useful in Anuvasana Basti; Anuvasana Basti with Vasa and Majja along with their merits and demerits.
- Relation of Virechana, Shodhana, Niruha Basti, Snehana with Anuvasana Basti
- Purvakarma for Anuvasana Basti; Pathya before, during and after Anuvasana Basti; all the aspects of administration of Anuvasana Basti including Kala.
- Observations during and after Anuvasana Basti
- Anuvasana Basti Pratyagamana, Samyakyoga, Ayoga and Atiyoga Lakshana and Various Vyapat of Anuvasana Basti and their management.
- Management during and after Anuvasana Basti.
- Pariharya vishaya, Pathya and pariharakala for Anuvasana.
- Various combined basti schedules such as Karma, Kala, Yoga Basti etc.
- Detailed knowledge of sneha basti and Matra Basti.
- Detailed knowledge of different basti formulations like Piccha Basti, Kshira Basti, Yapana Basti, Madhutailika Basti, Erandamuladi Niruha Basti, Panchaprasrutika Basti, Kshara Basti, Vaitarana Basti, Krimighna Basti, Lekhana Basti, Vrishya Basti,

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Manjishtadi Niruha Basti, Dashamula Basti, Ardhamatrika Basti, Sarva rogahara Niruha Basti, Brimhana Basti, Vataghna Basti, Pittaghna Basti and Kaphaghna Basti etc, and their practical utility.

- Karmukata of Basti. Applied anatomy and physiology of colon, Pharmaco-dynamics of Basti.
- Concept of 'Gut Brain' and its relevance to Basti Therapy.
- Study of relevant portions of Basti in classics with commentaries.
- Recent advances of researches on the effect of Basti.
- Scope of research in Basti.
- Role of Basti in promotion of health, prevention and treatment of diseases.

UTTARA BASTI:

1. Definition and classification of Uttara Basti, its Netra and Putaka. Dose of Uttara Basti Sneha and Kashaya Basti. Different Uttara Basti Kalpanas in various diseases.
2. Detailed knowledge of Purvakarma and Administration of Uttara Basti in male and female; precautions, aspetic measures, complications and their management. Karmukata of uttara Basti. Applied anatomy and physiology of urethra and related female genitalia, Pharmaco-dynamics of uttara Basti.
3. Concept of 'Gut Brain' and its relevance to Basti Therapy.
4. Study of relevant portions of Basti in classics with commentaries

NASYA KARMA:

1. Etymology, synonyms, importance and definition of Nasya.
2. Nasya drugs according to various Samhita.
3. Classifications and sub-classifications of Nasya with detailed knowledge of each type.
4. Indications and contraindications of each type of Nasya with reasons.
5. Drugs useful for Nasya with Dose and methods of preparations and their doses.
6. Nasya Kala and Pathya before, during and after Nasya; Duration of different Nasyas
7. Purvakarma of each type of Nasya.
8. Detailed knowledge of administration of each type of Nasya with management during and after Nasya.
9. Detailed knowledge of Common Nasya formulations such as Shadbindu Taila, Anu taila, Kshirabala Taila, Karpasastyadi Taila, Bramhi Ghrita etc.
10. Samyak Yoga, Ayoga and Atiyoga of each types of Nasya , its Vyapat and their management.
11. Pashchat Karma; Role of Dhumapana, Kavala after Nasya,
12. Diet and Pathya before, during and after Nasya Karma.
13. Pariharya vishaya, Parihara Kala,
14. Nasya Karmukata, Applied anatomy and physiology related to Nasa hi Siraso Dvaram, blood and nerve supply to nose, Shringataka marma, olfactory nerve and centres, aroma therapy, trans nasal administration of drug, recent advances in nasal drug

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delivery

15. Study of relevant portion in classics with commentaries
16. Recent advances of researches on the effect of Nasya
17. Scope of research in Nasya.
18. Role of Nasya in promotion of health, prevention and treatment of diseases.

PAPER – IV **100 Marks**

RAKTAMOKSHANA, PHYSIOTHERAPY AND DISEASE WISE PANCHAKARMA

Part –A (33 Marks)

RAKTAMOKSHANA:

1. Definition, importance, classifications and detailed knowledge of each type of Raktamokshana with their methods of performance.
2. General principles, indications, contraindications of Raktamokshana
3. Detailed knowledge of Jalaukavacharana: Indications and contraindications of Jalaukavacharana, various types of Jalauka with their beneficial and harmful effects.
4. Purvakarma and method of Jalaukavacharana, observations and Pathya before, during and after Jalaukavacharana.
5. Management during and after Jalaukavacharana
6. Symptoms of Samyak, Ayoga, Atiyoga and Vyapat of Raktamokshana and their management with Ayurveda and Modern medicines.
7. Pariharya vishaya and Parihara kala.
8. Karmukata of different types of Raktamokshana

Part -B **(33 Marks)**

Clinical Physical Medicine

1. Definition and terminology of clinical physical medicine.
2. Biomechanics of human movements; Physiology of exercise
3. Treatment modalities used in Physical Medicine- general properties and detailed clinical use of each
    a. Heat – general physiological properties and mode of action as a treatment agent, Forms of heat therapy – Superficial and deep heating. General knowledge of Infrared, Paraffin Wax bath, short wave diathermy, electro magnetic therapy, ultra sound therapy, convection heating devices,
    b. Cold as a therapeutic agent
    c. Prescription of physical modalities and their applications in medicine.
4. Clinical use of massage, manipulation, stretching
5. Principles of occupational therapy, training in activities of daily living for rehabilitation, self-help devices (walking aids, wheelchairs, tricycles & modified vehicles), instrumental activities of daily living,
6. Physiotherapy exercises for Paralytical disorders, cervical spondylosis, frozen shoulder and slip disc.

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Part – C **(34 Marks)**

DISEASE-WISE PANCHAKARMA

Role of Panchakarma in Different Stages of the following Diseases: Jvara, Raktapitta, Madhumeha, Kushtha, Shvitra, Unmada, Apasmara, Shotha, Plihodara, Yakridaluodara, jalodara,, Arsha, Grahani, Kasa,Tamaka Shwasa, Vatarakta, Vatavyadhi, Amlapitta, Parinama Shula, Ardhavabhedaka, Ananta Vata,, Amavata, Sheetapitta, Shleepada, Mutrakruchchra, Mutrashmari, Mutraghata, Hrudroga, Pinasa, Drushtimandya, Pandu, Kamala, Sthaulya, Krimi, Madatyaya, Moorchcha, Padadari, Mukhadushika, Khalitya, Palitya,

Use of Various panchakarma Procedures in the following disorders - Migraine, Parkinson's Diseasse, trigeminal neuralgia, Bell's palsy, cerebral palsy, Muscular dystrophy, hemiplegia, paraplegia, Lumbar Disc disorders, Spondylolisthesis, Ankylosing spondylosis, Carpel Tunnel Syndrome, Calcaneal Spur, Plantar fascitis, GB syndrome, Alzhiemer's disease, Irritable Bowel Syndrome, ulcerative colitis, psoriasis, hypothyroidism, hyperthyroidism, hypertension, allergic rhinitis, , Eczema, diabetes mellitus, Chronic obstructive pulmonary Disease, Insomnia, Rheumatoid Arthritis, Gout, Osteoarthritis,multiple sclerosis, SLE, male & female infertility, cirrhosis of liver, Jaundice, General Anxiety Disorders,

Practical and viva-voce: **100 Marks**

1. Long Case -20 Marks
2. Practical -25 Marks
3. Dissertation Presentation -05 Marks
4. Record -10 Marks
5. Viva -25 Marks
6. Teaching Communication Skill -05 Marks
7. Spotting -10 Marks

Reference Books:

1. Charak Samhita with commentary of Ayurved Dipika by Chakrapanidatta and Jalpakalpa taruby Gangadhara — Agnivesha
2. Sushrutha Samhita with the Nibhandha Samgraha commentary of Dalhana and Nyayachandrika panjika of Gayadasa on nidansthana — Sushrutha
3. Ashtang Hridaya with Sarvanga sundara and Ayurved rasayana — Vaghbhata

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commentaries

Ashtanga Sangraha with Shashilekha commentery — Vaghbhata

Bhela Samhita

Kashyapa Samhita Bhavaprakasha of Bhavamishra Sharangadhara Samhita Vangasen

Gadanigraha

4. Ayurvediya Panchkarma chikitsa — Dr Mukundilal Dwivedi
5. Panchkarma Vigyan — Dr Haridas Shreedhar Kasture
6. Illustrated Panchkarma — Dr.G Srinivasa Acharya
7. Ayurveda-Principles and Practice of Panchakarma — Dr. Mandip and Dr Gurdip Singh
8. The Panchkarma Treatment of Ayurved with Kerala Specialities — Dr. T.L. Devaraj
9. Panchkarma Therapy — Dr. R.H. Singh
10. Principles and practice of vasti — Dr. Vasudevan Nampoothiri and Dr. L. Mahadevan
11. Panchakarma adhava sodhana chikitsa — Manakkodan Kesavan Vaidyan
12. Panchakarma chikitsa — Dr.K.Rajagopalan
13. Keraleeya Chikitsa Paddhathi — Dr.Pavana, Dr.Manoj Sankaranaraynan
14. Shirasekadi vidhi — Puthehathu Raman menon
15. Claiton's Physiotherapy
16. Teddy's Physiotherapy
17. Harrison's Principles of Inernal Medicines
18. Guyton's Physiology

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2.11 No: of hours per subject Given under Clasue No. 2.10

2.12 Practical training

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.

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10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

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2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

19. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
20. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

21. JRAS - JOURNAL OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha *ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm*

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

22. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
23. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
24. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
25. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
26. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
27. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
28. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064

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29. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
30. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
31. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
32. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
33. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
34. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
35. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
36. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

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3 EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

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III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

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2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

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2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

Q.P.Code 102253 **Reg. No.:……**

PG Ayurveda Preliminary Examinations

PANCHAKARMA

Paper II –Moulika Sidhantha

Essay (20 x 1)

1. Explain the applied aspects of Trividha, Shadvidha, Ashta Vidha and Dasha Vidha Pariksha

Short Essays(10 x 8)

2. How to establish and manage an eco-friendly Panchakarma theatre
3. Explain the role of various Aushadha Kalpana in Panchakarma
4. Explain the role of gastro-intestinal tract in Virechana karma

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5. Principles of Shadvidha Upakrama and role of Panchakarma therein.
6. Explain the methods of examination of locomotor system.
7. Explain the methods of biomedical waste management in Panchakarma theatre
8. Explain the need and significance of Parihara Vishaya for Panchakarma
9. State the indications and contraindications for Shodhana in general

MODEL QUESTION PAPER

FINAL M.D. (AYURVEDAVACHASPATHI) DEGREE EXAMINATION

PANCHAKARMA

Paper – I Purva Karma-Snehana and Svedana

Time: Three Hours Maximum: 100 Marks

Answer all questions

Essay (1×20 = 20 marks)

1) Describe the poorva, pradhana and paschat karma of Shodhanartha snehapana in a 35 year old lady with psoriasis.

Short essays (8×10 = 80 marks)

2) Explain the benefits of Shodhana in swastha and Atura
3) Explain the methods, drugs, duration, dose and samyak lakshana of Rookshana prior to Snehapana
4) Define Dhara sveda with types and their indications. Explain the procedure of Kayaseka (Pizichil)
5) Explain Karmukata of Svedana

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6) List five indications and contraindications each for Svedanan with proper justification
7) Write the sneha vyapat and their management according to Ayurveda and Modern systems of medicine.
8) Write Jiryamana, Jirna and Ajirna Lakshana during snehapana
9) Explain the specific diet and regimens during and after Svedana

MODEL QUESTION PAPER

FINAL M.D. (AYURVEDAVACHASPATHI) DEGREE EXAMINATION

PANCHAKARMA

Paper – II Vamana and Virechana Karma

Time: Three Hours Maximum: 100 Marks

Answer all questions

Essay (1×20 = 20 marks)

1. Explain the pharmaco-dynamics of vamana and virechana according to Ayurveda and Modern systems of medicine

Short essays (8×10 = 80 marks)

2. Enumerate vyapat of virechana and explain the patho-physiology of atiyoga-janya vyapat
3. Write about the procurement and preservation of madanaphala
4. Write five kalpa-sthana uktha virechana yoga and their indications
5. Explain the concept of avasthanusara vamana
6. Explain laingiki-sudhi of virechana according to Charaka and Sushruta samhita

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7. List ten contra-indications of vamana with reasoning
8. Comment on the classification of virechana-dravya according to Sharngadhara
9. Explain the procedure of vamana karma

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MODEL QUESTION PAPER

FINAL M.D. (AYURVEDAVACHASPATHI) DEGREE EXAMINATION

PANCHAKARMA

Paper – III Basti Karma and Nasya Karma

Time: Three Hours Maximum: 100 Marks

Answer all questions

Essay (1×20 = 20 marks)

1) Explain various Vyapat of Niruha Basti and their management according to Ayurved and Modern Systems of Medicines

Short essays (8×10 = 80 marks)

2) Explain the method of administration of uttara Basti in female along with precautions and aseptic measures
3) List the contraindications of nasya with proper reasons
4) Explain Pariharya vishaya, Pathya and Pariharakala for Anuvasana Basti
5) List ayoga and atiyoga lakshana of marsa nasya with taila and their management
6) Explain the significance of diet before and after Nirooha.Prepare a diet chart

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7) Explain the physiology and pharmaco-dynamics of nasya
8) Explain the practical utility of Erandamuladi Niruha Basti along with its ingredients and indications
9) Name one swarasa, kalka, choorna, taila and ghrita each for nasya in peenasa. Explain the exact indication of each in the samprapti of peenasa.

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MODEL QUESTION PAPER

FINAL M.D. (AYURVEDAVACHASPATHI) DEGREE EXAMINATION

PANCHAKARMA

Paper - IV Raktamokshana, Physiotherapy and Diseasewise Panchakarma

Time: Three Hours Maximum: 100 Marks

Answer all questions

Essay (1×20 = 20 marks)

1. Explain the role of Panchakarma in different stages of Jvara

Short essays (8×10 = 80 marks)

2. Explain the various Physiotherapy exercises employed in frozen shoulder and slip disc.
3. Describe the method of administration of Jalouka
4. Explain the use of various Panchakarma Procedures in Jaundice.
5. Explain the vyapat of siravedha and their management acording to Ayurveda and modern medicine.

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6. List the physiotherapy techniques to be used in the management of Ardita. Explain Ultrasono therapy in detail.
7. Discuss the karmukata of Raktamokshana
8. Write down the principles of occupational therapy. List three self-help devices and explain how they help in rehabilitation therapy.
9. Explain the samyakyoga, ayoga and atiyoga lakshana of Prachana with its management

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3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10 & 2.25

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience in concerned subject/specality.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

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3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Case no

Name :	OP No.
Age :	IP No.
Sex :	Ward No.
Religion:	Bed No.

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Marital Status: Date of Admission:

Occupation : Date of Discharge:

Education:

Economic Status:

Address:

Presenting Complaints with Duration:

History of Presenting Complaints:

History of Previous illness:

Personal History:

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Family History:

General Examination:

Ashtasthana pareeksha:

Nadi :

Moothram:

Mala:

Jihwa:

Sabdam:

Sparsam:

Drik:

Akrithi :

Physical Examination:

1.Jatroordhwam:

2.Madhyakayam:

3.Sakha:

Systemic Examination:

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Investigations:

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DasavidhaPareeksha:

Dooshyam:

Desam:

Balam:

Kalam:

Analam:

Prakriti:

Vayah:

Satwam:

Satmyam:

Aharam:

Rogapareeksha

Nidanam:

Poorvaroopa:

Roopam:

Upasayam:
Samprapthi:

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VYAVACHEDAKA NIDANAM (DIFFERENTIAL DIAGNOSIS):

ROGA NIRNAYAM:

Upadrava:

Rishtam:

Vyadhiroopasamgraham:

Dosha:
Vyadhyavastha:

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Srothas :

Rogamargam :

Sadhyasadhyatha:

Chikitsa padhati

Chikitsa sootra:

Oushadha:

Kriyakrama:

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Pathya:

Apathya:

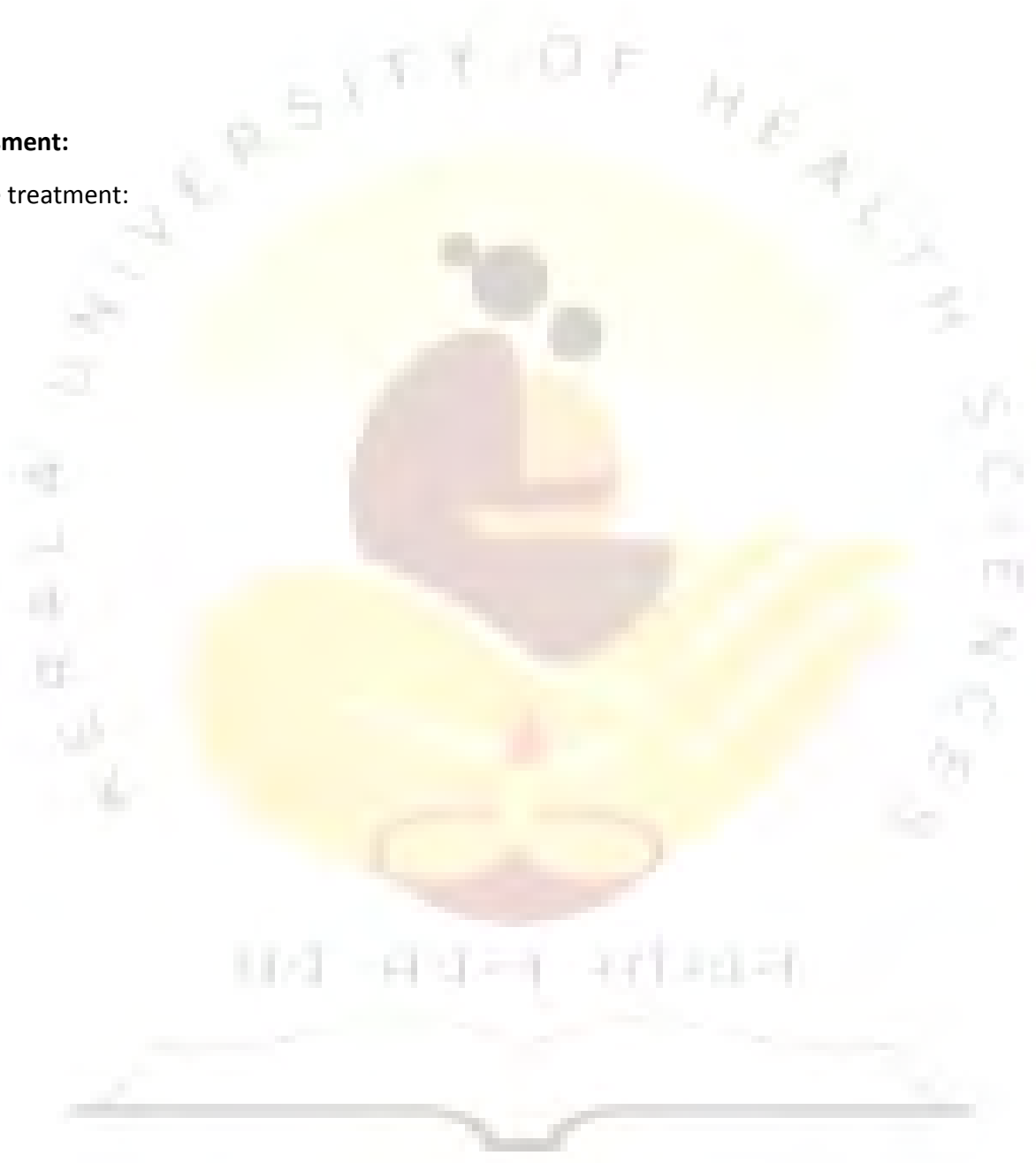
Advice on discharge:

Follow up:

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Assessment:

Before treatment:



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After treatment :

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Signature of the student **Signature of the Guide**

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Case no

Name :

OP No.

Age :

IP No.

Sex :

Ward No.

Religion:

Bed No.

Marital Status:

Date of Admission:

Occupation :

Date of Discharge:

Education:

Economic Status:

Address:

Presenting Complaints with Duration:

Summary of History:

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Examination findings:

Investigations:

Roganirnayam:

Chikitsa padhati

Chikitsa sootra:

Kriyakrama:

Poorvakarma

1. Sambharasangraha

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2. Atura pareeksha

Dosham :

Dooshyam: Desam:

Balam: Kalam:

Analam: Prakriti:

Vayah: Satwam:

Satmyam: Aharam:

Kosta:

Vital signs

3. Oushadhanirnaya

Yoga:

Matra:

Prayogakrama:

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4. Aturasidhata

Pradhanakarma

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Pascatkarma

Kriya

Aturapareeksha

Pathyapathya

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Signature of the student **Signature of the Guide**

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

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(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

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(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

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1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.

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3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

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Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

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1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straightforward.
11. Avoid repetition in data presentations. Select the most convincing way ofpresentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academicworks.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

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REGULATIONS 2016

Syllabus

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Vachaspati – Mano vigyana evam Manasa Roga

(M.D. (Ayurveda)- Psychiatry)

Course Code 261

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Vachaspati – Mano vigyana evam Manasa Roga (M.D. (Ayurveda)- Psychiatry)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration:

3years

2.6 Subjects

Given under clause 2.10

The concept of health care counseling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under clause 2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee

(AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.
   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati
   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti
6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda
   Fundamental research on concepts of
   Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-
   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

   concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
   Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

   Information on WHO guidelines for standardization of herbal preparations.
   Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.

Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development -Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research: Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies Longitudinal & Cross sectional studies Prospective & Retrospectives studies Cohort studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

- Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.

Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete

4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance

9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals

10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple

13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad

PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
3. Chikhale, N.J. and Virendra Gomase, Bioinformatics- Theory and Practice, Publisher: Himalaya Publication House, India; 1 edition (July, 2007) ISBN-13: 978- 81-8318-831-9
4. Lesk, A.M. Introduction to Bioinformatics Oxford 2002.
5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005
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Medical Statistics:

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   University Press.
4. Bradford Hill – Basic Medical Statistics
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6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi–1.
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8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers
    Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences.
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12. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trails. Published by the Pharmaceutical Press- An imprint
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13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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M.D.-AYURVEDA PRELIMINARY

MANO VIGYAN AVAM MANAS ROGA

(Psychiatry)

PAPER-II **Theory- 100 marks**

PART A **50 marks**

1. Concept of Manas in Sankhya, Yoga, Nyaya, Vaisheshika, Purva Meemamsa, Vedanta, Bouddha, Tantra and Purana. Philosophical concepts in Ayurveda and its applications.
2. Basic principles of Ayurveda psychology - Srishti utpatti, Triguna, Loka purusha samya Siddhanta, determination of Purusha according to Dhatubheda, Chikitsadhikrita purusha in a psycho somatic axis, Perception and cognition in Ayurveda. Dosha, Dhatu, Agni, Mala Vigyanam and its psychosomatic importance, 'Shariramapi Sattvamanuvidhiyate Sattvam Cha Shariram'. Concept of Dharma, Artha, Kama and Moksha, concept of Apunarbhava in Ayurveda, Trividha Eshana.
3. Introduction to psychoanalytical concept – Id, Ego, Super ego. Concept of mind in Western psychology
4. Concept of Mana in Ayurveda, Mano Nirupana, Manaswarupa, Sthana, Vishaya, Karma, Guna and Dosha. Manovyapara, Gyanotpatti, Gyanotpattau Manaso Dayittwam. Manas as 'Cheshta Pratyayabhutam Indriyanam Indriyo-Pakramaniyam'. Atma nirupana, Atmaguna.
5. Psychological Processes – Attention and perception, intelligence, creativity, motivation, emotion, sex and other drives, states of consciousness, learning, memory, cognition and dream, knowledge of developmental psychology.
6. Understanding of Manasika bhava / Manovikara and their importance in Manasroga Nidana and Chikitsa – Iccha, Dwesha, Sukha, Dukha, Lobha, Moha, Krodha, Shoka, Vilapa, Preeti etc. Emotional aspects of human behaviour.
7. Manovaha Sroto Nirupana, basics of neurophysiology, neurotransmitters, psychoneuroimmunology, physiological basis in human behaviour, influence of nervous system on human behaviour, sensory systems, autonomic nervous system, study of Ojas, Gyanendriya and Buddhi.
8. Satvikadi Kayanam samanya gyanam, basic concepts of personality, Sattvabala and mental disorders.
9. Manasroga samanya nidana, Pragyaparadha- samkshipta vivarana. Vibhramsha of Dhee, Dhriti and Smruti, Mano Dosha and Sharir Dosha in psychopathogenesis, Sadvritta and its importance.
10. Relation of psychology with parapsychology.

PART B **50 marks**

1. Basic understanding of Sattva Pariksha , utility of Trividha, Shadvidha, Ashta Sthana, Dashavidha and Srotopariksha in psychiatric practice, Vikriti pariksha- Vibhrama of Mano

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-Buddhi- Samgya Gyan-Smriti-Bhakti-Sheela-Cheshta and Achara.

2. Psychiatric examination- Mental status examination, mini mental status examination, cognitive assessment with higher mental functions, personality and self in psycho analysis, basic psychiatric assessment inventories- Hamiltons scale, Bech's inventory, GRISS questionnaire, Weschlers' scale for intelligence.
3. Clinical psychology – General psychology with schools of psychology, theories of personality development, social dimensions of behavior and current issues, doctor patient relationship, patient interviewing and study of therapeutic relationship. Basic knowledge about anxiety disorders, delusional disorders, phobic disorders, lying, stealing, juvenile delinquency. Mental hygiene and behaviorism.
4. Technical terms used in psychiatric practice, general symptoms of psychiatric disorders, classification of psychiatric disorders as per DSM and ICD classifications.
5. Basic knowledge about organic psychosis, psychoneurosis, Schizophrenia, mood disorders, personality disorders, sexual perversions, sleep disorders and mental retardation.
6. Basic understanding of Bhuta, Graha and Bhutavidya. Hetu, Lakshana and Samprapti of Unmada, Apasmara, Atattwabhinivesha, Grahavesha, Bhutonmada, Gadodvega, Yoshapasmara, Madatyaya.
7. Nidra and Swapna, its types and role in psychopathogenesis.
8. Basic understanding of Chikitsa bheda, descriptions of general and specific principles of Kayachikitsa, its practical application in Manasroga, Daivavyapashraya,Yuktivyapashraya,Satvavajaya chikitsa and Dravya-adravya chikitsa, Manodosha Samanya chikitsa, basic treatment principles in Manasika vyadhi, Panchkarma and its application in Manasika roga, Importance of Rasayana and Vajikarana therapies in Psychiatric practice, Medhya rasayana.
9. General knowledge in the basic management principles of psychiatric disorders in modern medicine.Basic knowledge on psychopharmacology, forensic psychiatry, community psychiatry, liaison psychiatry, child psychiatry and geriatric psychiatry.
10. Application of psychiatric knowledge in other specialities viz. Kayachikitsa, Agadatantra, Shalya, Shalakya, Prasuti- Stri Roga and Kaumarabhritya.
11. Psychosomatic disorders, psychological understanding on essential hypertension, asthma and other allergic disorders, psoriasis, IBS, ulcerative colitis, CAD, tension /vascular headaches, pseudopsychosis, hyperemesis gravidarum, enuresis, diabetes mellitus, obesity, autoimmune disorders, neoplasm and psychosexual disorders.
12. Basic understanding of diagnostic applications- Haematological, biochemical, serological, histopathological, imaging - ECG, EEG, USG, MRI scan, CT scan, PET scan in psychosomatic, psychiatric and neuro- psychiatric practices.

PRACTICAL **100 marks**

Contents:

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PRACTICAL

100 marks

Contents:

1. Daily hospital duties in OPD, IPD and casualty
2. Practical Record Book
    1. Psychiatric – 5 cases
    2. Psychosomatic – 5 cases
    3. Paediatric / Geriatric Psychiatry – 5 cases
    4. Psychosexual / Substance abuse – 5 cases
3. Psychiatric Inventories- MMSE, Hamilton Anxiety Depression Rating Scale, Brief Psychiatric Rating Scale, Bech's Depressive Inventory, Weschlers' scale, GRISS questionnaire -2 Cases each
4. Manasa Bhava assessment scales- Sattvabala, Manasa Kaya, Smriti, Buddhi, Raja and Tama rating, Manas Bhava Pariksha –2 cases each

Distribution of marks (Practical)

Record	20
Long Case	30
Short Case	10
Viva	25
Medical Procedure/Lab work	15
Total	**100**

REFERENCE BOOKS:

1. Related matter of Charak, Sushrut and Vagbhata and other ancient texts with commentaries
2. Prachin Manovikara Vigyanm - Ayodhya Prasad Achal
3. Ayurvediya Padarth Vigyan - Ranjit Rai Deshai
4. Ayurved Darshan - Acharya Rajkumar Jain
5. Purusha Vichaya - Prof. V.J. Thakkar
6. Ayurvediya Manas Vigyan - Prof. Ram Harsh Singh
7. Yoga evum Ayurved - Acharya Rajkumar Jain
8. Basic principles of Ayurvediya Padartha Vigyan - Dr Yogesh Chandra Mishra
9. Synopsis of Psychiatry - Harold kaplon and Benjamin saddock
10. Oxford textbook of Psychiatry - Michaeal Gerlder, Paul Harrison
11. General psychology and Abnormal psychology - S.K. Mangal

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12. A text book of Post Graduate Psychiatry - Neeraj Ahuja
13. Mind in Ayurveda and other Indian Traditions - A.R.V.Murthy
14. Psychopathology in Indian medicine - Satyapal Gupta
15. Body- Mind-Spirit Integrative Medicine - Prof. Ram Harsh Singh
16. Rationale of Ayurveda Psychiatry - Dr. A.R.V. Murthy
17. Foundations of contemp**orary Yoga and Yoga Therapy**- Prof. Ram Harsh Singh
18. Stress and its Management - Dr. K.N. Udupa
19. Concept of Mind - Edited by Prof. C.R. Agnivesh, Kottakkal
20. Kayachikitsa - Part 3 - R. R. Pathak and Vidhyadhar Shukla
21. Panchakarma Illustrated - Prof. Shrinivasa Acharya
22. Unified Dimensions of Ayurvedic Medicine - Dr. J.S. Tripathi
23. Essential Psychiatry - Bhatia MS
24. Sahassrayoga - Nishteswar and Vaidyanath
25. Ayurveda and the Mind - David Frawley
26. Manasa Roga Vijnana - Balakrishna
27. Comprehensive Textbook of Psychiatry - Kaplan and Sadock's
28. Psychiatry for medical students - Robert J Waldinger
29. Introductions to Psychology - Morgan / King.

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Final M.D. Ayurveda

MANOVIGYAN AVUM MANASAROGA

Theory- 400 Marks (100 Each)
Practical and Viva-Voce – 100 Marks

PAPER – I **100 Marks**

MANOVYAPARA EVAM MANOVIGYANAM

1. Prachya – arvachya matanusara Mano vigyanasya Bhutavidyayah, Amnusha tatha Grahadinam parichaya, setihasa.
2. Prachya arvachya matanusara Manasah Nirupanam- Concept of Manas from Ayurved and modern perspective.
3. Vividha darshananusara Manasah varnanam:- Concept of mind in various philosophies.
4. Manasah Svarupam – Structure of mind, Manasah Sthanam- Location of mind, Manovishayah- Objects of mind, Manogunah (Anutva and Ekatva) – Attributes of mind Minuteness and oneness, Manasah Ubhayatmakatvam-Duality of Manas, Manasah Dravyatvam Karanatvam cha- mind as a substance and tool, Manasah Karanadravyatvam-mind as causative substance, Manodoshah- (Rajas and Tamas), Manasah Bhoutikatvam- Elemental nature of manas Introduction to concept of Buddhi and Ahamkara – intellect and ego, Manasah Ahamkarikatvam –origin of mind from ego (samkhya), Manasah Annamayatvam- Relationship between food and mind, Manasah trigunatmakatvam (Sattva, Rajas, Tamas)- mind and the three major attributes, Manasah jadatvam- inertia of mind, Manasah dhatutvam-mind as a component of living being, Manasah Karma- Actions of Manas.
5. Manovyapara Nirupanam
6. Manovyapare Pranodana sadhaka Bodhakadi Doshanam Sambandhah-Relation of humoral fractions such as Prana, Udana, Sadhaka- Bodhaka in the activity of Manas, Concept of Ojas and Manas

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7. Katham prakopayanti ManoDoshah sharir Doshan?- How does manasika Doshas aggravate sharirika Doshas?
8. Indriya panchapanchakam- five factors in relation to the mental faculties.
9. Gyanendriyanam vishayah- the objects of sense faculties.
10. Gyanotpatti prakriyayam Manaso pradhanyam- Importance of Mansas in cognitive process.
11. Indriyarthagrahananantaram Manasah vyapara avum gyanotpattou manaso dayitvam- Action of Manas in cognition after reception by respective Indriya.
12. Knowledge of Dirgha Shashkuli nyaya, Alata-chakra nyaya, Vichi-taranga nyaya, Kadamba-mukula nyaya.
13. Shabda-sparsha-rupa-rasa-gandhanam grahakam manah, tasya mahatvam cha – Manas as conductor of sense objects and its importance.
14. Vayuh indriyanam udyojakah tatha Manasah preranam –Vayu as stimulator of indriya and initiator of manas.
15. Vakpravrittou Manasah yogadanam- Role of Manas in production of speech.
16. Pratisharire Manasah bhinatvam – concept of individuality of mind.
17. Chikitsya purushah- treatable person (living being).
18. Atma nirupanam- description of Atma, Sukshma sharirasya varnanam- description of subtle body, Atma manasoh sambhandhah- relation between Manas and Atma.
19. Antah karana chatushtaya (the four internal faculties).
20. Importance of Dhi, Dhriti and Smriti- importance of intellect, retention power and memory.
21. Role of manas in achieving Tri eshana and Chaturvidha Purushartha/chatur varga- role of manas in attaining the pursuits and four goals of life.
22. Concept of Satyabuddhi, Ritambhara Pragya and Upadha- concept of true and false knowledge.
23. Concept of Punarjanma, Purvajanmakrita karma, Karmaphala.
24. Manovaha Srotasam Parichaya- Introduction of Manovaha srotas(channels of mind)
25. Manovaha, Samgyavaha, Buddhivaha, Chetanavaha, Chetovaha, Vatavaha, Raktavaha adi upayukta Srotasam Manasroge varnanam- Description of Manovaha, Sangyavaha, Buddhivaha, Chetanavaha, Vatavaha, Raktavaha srotas etc in relation to Manasroga
26. Shatchakra nirupanam.
27. Sattvasara purusha-person with mental excellance.
28. Nidravichara- Concept of sleep, Swapna vichara- Concept of dream, Tandravichara-

Concept of drowsiness.

29. Concept of manasprakriti – mental temperament, Concept of Manasa bhava in Shareerika prakriti.
30. Manasroge Manovigyane cha upayukta Paribhashika shabdanam vishleshanam technical terms used in psychology and psychiatry
31. Manas roge upayukta Samhitanam satika adhyayanam- study of portions of treatises useful in psychiatry along with their commentary.
32. Arvachina mano vigyanasya adhishthana siddhantah, mastishka karmanam sthapanam cha-Fundamentals of modern psychology and functions of brain.
33. Applied Neuro-anatomy and physiology, Neurotransmitters, Psychoneuro immune endocrinology.
34. Manasah swabhavika pratirodhah – Defence mechanism of mind.
35. Shishu manas-shastra, vikasatmaka Manas-shastra-Shishu, Bala, Kumarah, Proudhah, Vriddhah cha- Essential elements of psychology, developmental psychology: child, adolescence, adult and aged.
36. Bhava, Sheela, Buddhi, Smriti, Prerakatva adinam gyanam- Concept of Mood, behaviour, attitude, emotions, intelligence, memory, motivation, perception etc.
37. Manas Swasthya Evam Manoroganam Paribhasha – Definition of mental Health and psychiatric disorders.
38. Manasrogvigyansya mahatvam, phalam, prayojanam, prabhavashcha

PAPER – II **100 Marks**

MANOVAIKARIKI EVAM BHUTAVIDYA

1. Manovega, Mano vikarah, Mano Dosha, Mana Sahrirayoh paraspara anuvidhayitvam mutual symbiosis of sharir and manas, Manasah chanchalatvam, Manaso vyadhinam ashrayatvam, Manasrogeshu Doshanam paraspara anubandhah, Manasvyadhi utpattou sharir Doshanam vikarakaritvam , Indriyadinam hinamithyatiyogah. Prajnaparadha, Purva janma krita karma tatha Papa karmasya rogkarakatvam, Adharmasya Achararasayana upekshanasya cha rogkarakatvam.

Bhutavidya – Definition and scope with applied aspects: Divergent views

1. Types and characteristic features of Bhuta and Graha, Amanushopasarga Vikara cause by Bhuta and Graha, Aeito-pathogenesis of Bhuta and Graha
2. Relationship of Bhuta with Jwara, Ojakshaya, Manovikara, Arishta Lakshana and

Daivabala Pravritta diseases.

3. Grahavesha, affecting time of Graha, their specific features, prodromal features and prognosis.
4. Differential understanding of Balagraha and Grahabadha.
5. Sushrut's concept of invasion of Bhuta/Graha.
6. Manas Rognam Nidan, Sampraptischa
7. Manobuddhyadi Vibhramsha
8. Manas dharaniya vega.
9. Kayika-Vachika-Manasika karma hinamithyati yoga in Manasa roga samprapti.

Manovikriti- Psychopathology

1. Bijapradosha and Kulaja bhava in manas roga – Genetics and hereditary factors in Psychiatry.
2. Manas roganam prachya arvachina matanusarena vargikaranam
3. Classification of manas rogas yatha kevalamanas, manas sharir, shariramanasika, agantuja adayah
4. Understanding of Parapsychology and its role in overt psychiatric disorders.
5. Recent ICD and DSM classification.

Manas Rogi pariksha vidhi-Psychiatric examination

1. Prachya arvachina matanusarena rogi pariksha visheshena sattva pariksha – Examination of patient according to Ayurvedic and modern methods.
2. Trividha Sattva Pariksha
3. Charakokta Anumana Pariksha
4. Manasika avastha Pariksha – Mental Status Examination
5. Vividha pariksha manakah – Different psychiatric assessment assessment inventories like Hamilton's scale, Bech's Depression inventory etc.
6. Manorog chikitsiya manomapaka upakaranani cha – Psychiatric and Psychometric tools for diagnosis, Evidence based diagnostic methods.
7. Prayogashaliya pariksha –Investigations- Haematological, biochemical, neuro physiological, endocrinal, EEG, radio imaging-MRI etc.
8. Manasrognam sadhyasadhyata – Prognosis of psychiatric diseases.
9. Manas Rog Sandharbhe Vidhi Vaidyakasya vistrita gyanam.
10. Forensic psychiatry- Knowledge about legal and ethical issues in psychiatry, Indian

lunacy act, mental health act, Norms to setup a well equipped Mental Hospital (OPD, IPD)

PAPER – III **100 Marks**

MANAS ROGA CHIKITSA

Comprehensive knowledge of etiology, demography, underlying psycho pathogenesis, symptomatology, complications, investigations, diagnosis, prognosis and drug-non drug management of following psychiatric disorders as per Ayurvedic-Modern therapeutics with their pharmacodynamics.

1. Unmada (Psychosis)- Nija, Agantuja Unmada, Bhutonmada, Vishaja Unmada, Sutikonmada, Smaronmada, Tattvonmada- Paronoia, Mano dukhaja Unmada –Stress related disorders.
2. Apasmara- seizure disorders
3. Apatantraka – hysterical convulsions
4. Tandavaroga – Chorea
5. Yoshapasmara – conversion disorders
6. Atatvabhinivesha- Obsessive compulsive disorders
7. Vishada- Depressive illness
8. Gadodvega – Hypochondriasis.
9. Mada, Murchha, Sanyasa- sensorial disorders
10. Madatyaya, Panatyaya (Panavibhrama, Paramada, Panajirna) – Substance abuse disorders.
11. Nidra vikara(Sleep disorders), Klama, Tandra, Glani.
12. Bhrama, Vibhrama – Delusional disorders.
13. Chittodvega – Generalized Anxietty disorders.
14. Smriti vikara (memory disorders)
15. Manasika klaibya, Sushrutokta Napumsakata
16. Manasa Dosha Vikara- Kama, Krodha, Lobha, Moha, Irshya, Bhaya, Mana, Mada, Dambha, Ahamkara, Harsha, Matsarya, Iccha, Dvesha.
17. Mood and affective disorders – major depressive disorders, mania and their possible Ayurveda co-relates.
18. Schizophrenia
19. Personality disorders
20. Behavioural disorders

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21. Organic mental disorders
22. Post traumatic stress disorders
23. Psycho sexual disorders
24. Eating disorders
25. Somatoform and dissociative disorders
26. Senile psychiatric disorders – Demantia Alzhiemer's disease, Parkinsonism, Menopause, Andropause and their possible Ayurveda co-relates.
27. Adhi- Vyadhi Roganam Manasika Prabhava Chikitsa Cha –Psychosomatic disorder Bhayaja and Shokaja Atisara, Kamaja and Shokaja Jwara, Tamakashwasa, Prameha, Amlapitta, Parinamashula, Grahani, Uccha Raktachapa(Hypertension), Shula (pain disorders), Twak Vikara.
28. Jirna- Asadhya Sopadrava Vyadhinam vivechanam – Mental problems in chronic incurable diseases like AIDS, Cancer etc.
29. Mano prakriti vikara – psychopathic personality.
30. Jivana Shaili Tatha mano sammarda janya rogah – Life style and stress related disorders.
31. Shishu tatha Kumara Manoroga – Child and adolescent psychiatry.
32. Jadata, Buddhimandya, Adhyayana Akshamata – Mental deficiency, mentally challenged and learning disabilities.
33. Achara vaikalya – Conduct disorders
34. Manobhava vikara – Emotional disorders
35. Cerebral palsy, infantile autism, Attention Deficit Hyperactive disorders, Tourette's disorder with their possible Ayurveda co-relates.
36. Preventive aspects in Manas Roga – Achara Rasayana, Sadvritta, Shodhana, Rasayana and Vajikarana
37. Manas Roganam Samanya Vishesha Chikitsa Siddhantanam Varnanam,- Daiva Vyapashraya, Yukti Vyapashraya, Sattvavajaya, Adravyabhuta Chikitsa Upayah.
38. Sattvavajaya Chikitsa: Its application and techniques viz. Dhi, Dhairya, Atma Janya, Kula Janya, Kala Janya, Desha Janya, Bala Janya, Samadhi, Santwana, Ashwasana, Ayurveda Psycho shock therapy viz. Trasana, Bhayadarshana, Adbhuta Darshana, Vismarana, Vismapana and Pratidvandwi Bhava with their scientific basis.
39. Role of Rasayana, Medhya Rasayana, Achara Rasayana and Vajikarana in Manasa Roga
40. Pathyapathya in Manasa Roga.

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41. Manas Rogopayogi Vividha Aushadheenam Vivechanam: Ekamulika (Single drug), Panchavidha Kashaya Kalpana, Rasa Rasayana etc.
42. Brihatrayee, Yogaratnakara, Sharngadhara, Gadanigraha, Bhavaprakasha, Sahasrayogaukta vividha yoganam vivechanam: Brahmi, Mandukaparni, Vacha, Jatamansi, Yashtimadhu, Shankhapushpi, Kushmanda, Ashwagandha, Kushtha, Tagara, Guduchi, Jyotishmati, Srikhandadichurna, Saraswatachurna etc. Swarna, Swarnamakshika Bhasma, Rajata, Pravala, Mukta, Manahshila, Krishna Chaturmukha Rasa, Krishnachaturbhuj Rasa, Brihatvatachintamani Rasa, Vata kulantaka Rasa, Manasmitra vataka, Smritisagar Rasa, Unmada gajakesari Rasa, Apatantrakari vati, Kumarakalyana Rasa etc. Kalyanaka ghrita, Brahmi ghrita, Mahapanchagavya ghrita, Mahapaishachika ghrita, Mahabhutarava ghrita, Kushmanda ghrita, Purana ghrita, Panchagavya ghrita etc.
43. Saraswatarishta, Ashwagandharishta, Chittachandirasava etc.
44. Himasagara taila, Tungadrumadi taila, Gandharaja taila, Brahmi taila, Sidharthaka agada etc.
45. Dhupa, Nasya, Lepa, Anjana yogas useful in Manas Roga.
46. Folk Medicine in Manasa Roga.
47. Mano Bheshaja vigyanam – Essentials of Psycho pharmacology, knowledge of Biological and Pharmacological Therapies in the Management of Various Psychiatric diseases such as hypnotics, sedatives, anxiolytics, mood stabilizer/elevators, antidepressants, antipsychoics, anticonvulsants, Electro-convulsive therapy(ECT) and its applied aspects.
48. Psychological aspects of Disaster Management- Apada evam Manovigyan.

PAPER –IV **100 Marks**

MANASA ROGI ANYA CHIKITSA EVAM YOGA

Panchakarma

1. Importance of Panchakarma and other allied procedures in the management of Manasa Roga
2. Theoretical knowledge and application of the following karmas in Manasa Roga Snehana, Svedana, Vamana, Virechana, Basti, Nasya, Raktamokshana, Mastishkya-Shiro-Basti, Shiro-Dhara, Shiro- Pichu, Shiro- Abhayanga, Murdhni taila, Anjana Dhupa, Dhupana etc.

Yoga

1. Manovigyana sandharbhe yogasya vaishishtyam, Yogashastrasya upayogita mahatvam cha- Importance of Yoga in manovigyana. Importance of Yogashastra and its application in manovigyana.
2. Yogasya darshanika svarupagyanasahitam tasya astanganam samichinam Gyanam knowledge of Ashtangayoga and its applicability.
3. Ayurveda drishtya yoga adhyayanasya upayogita, Ayurveda shastre pratipaditah yogasya siddhantah.
4. Satvavajaye gyana-bhakti-karma yoganam manasa roge vivechanam-Hatha yogascha Description of Satyavijaya, Gyan, Karm and bhakti Yoga. Hathyoga and manasvigyan.
5. Role of Shatkarma – Kapalabhati, Trataka etc. in Manasa Roga.
6. Naishthiki chikitsa in Manasa Roga.
7. Therapeutic potential of Yoga, Psycho biological effects of Yoga, Spiritual therapy and Yoga.
8. Sudarshana kriya , Transcendental meditation, Yoga nidra, Vipashyana and other allied yogic techniques in Manasa Roga chikitsa.
9. Manas and prana (bio-energy), pranic healing, means of bio-energy modulation in Manasa Roga.
10. Pranayama and contemporary yoga practice in Manas Roga.

Other allied therapeutic Procedures:

1. Various methods of psychotherapy and counselling techniques, transactional analysis, behavioural therapy, psycho analysis.
2. Swapna Samvahana chikitsa –Hypnotherapy-Past life Regression and Age Regression Therapy in Manasa Roga.
3. Knowledge of psychiatric emergency and their management.
4. Knowledge of surgical intervention in Manasa Roga
5. Recent advances and updates in concepts, drugs and therapeutic procedures in Manasa Roga.

Content of the Practicals

S.No.	Topic		No. of Cases
1.	Hypnotherapy techniques		10
2.	Case Study-	Unmada	20
		Apasmara	20
		Atatvabhinivesh	10
		Chittodvega	25

	Vishada	25
	Madatyaya	10
	Psycho Sexual disorders	25
	Psychogenic headache	20
	Nidra vikara	20
	Stress related disorders	25
3.	Examination of Manasika Bhava in psychosomatic illness	25
4.	Yogasana, Pranayama and Meditation Techniques	25
5.	Panchakarma Procedures in Manasa Roga	25
6.	Anjana, Dhoopanadi Karma	25
7.	Instruments (GSR biofeedback, EST, EEG, etc.)	25
8.	Counselling on the pattern of Sattvavajaya	25
9.	Psychometric scales (Ayurveda and conventional)	30

Visit to Mental Hospitals

Pattern of Practical Examination - 100 Marks

Long case	25
Short case	10
Viva	25
Dissertation Presentation	10
Teaching and Communication	10
Assessment of Scale & Inventary	10
Record	10
Total	**100**

Reference Books-

1. Related matter of Charaka, sushruta and Vagbhata and other ancient texts with commentaries
2. Prachin Manovikara Vigyanam - Ayodhya Prasad Achal
3. Ayurvediya Padarth Vigyan - Ranjit Rai Deshai
4. Ayurved Darshan - Acharya Rajkumar Jain
5. Purusha Vichaya - Prof. V.J. Thakkar
6. Ayurvediya Manas Vigyan - Prof. Ram Harsh Singh
7. Yoga evum Ayurved - Acharya Rajkumar Jain
8. Basic principles of Ayurvediya Padartha Vigyan - Dr Yogesh Chandra Mishra

9. Synopsis of Psychiatry - Harold kaplon and Benjamin saddock
10. Oxford textbook of Psychiatry - Michaeal Gerlder, Paul Harrison
11. General psychology and Abnormal psychology - S.K. Mangal
12. A text book of Post Graduate Psychiatry - Neeraj Ahuja
13. Mind in Ayurveda and other Indian Traditions - A.R.V.Murthy
14. Psychopathology in Indian Medicine - Satyapal Gupta
15. Body- Mind- Spirit Integrative Medicine - Prof. Ram Harsh Singh
16. Rationale of Ayurveda Psychiatry - Dr.A.R.V. Murthy
17. Foundations of contemporary Yoga and Yoga Therapy – Prof. Ram Harsh Singh
18. Stress and its Management - Dr. K.N. Udupa
19. Concept of Mind - Edited by Prof. C.R. Agnivesh, Kottakkal
20. Kayachikitsa - Part 3 by R.R. Pathak and Vidhyadhar Shukla
21. Panchakarma Illustrated - Prof. Shrinivasa Acharya
22. Unified Dimensions of Ayurvedic Medicine - Dr. J.S. Tripathi
23. Essential Psychiatry - Bhatia MS
24. Sahassrayoga - Nishteswar and Vaidyanath
25. Ayurveda and the Mind - David Frawley
26. Manasa Roga Vijnana - Balakrishna
27. Comprehensive Textbook of Psychiatry - Kaplan and Sadock's
28. Psychiatry for medical students - Robert J Waldinger
29. Introductions to Psychology - Morgan / King.

2.11 No: of hours per subject

Given under clause 2.10

2.12 Practical training

Given under clause 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.

13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post GraduateTeaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha

ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.

14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3. EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

Model question paper I MD Examination

Manovigyan Avum Manasroga

Paper II -Moulika sidhantha

Total Marks: 100

Long Essay

1. Describe Prajnaparadha in detail. Write its role in the aetiopathogenesis of manasika rogas with suitable examples. (20 marks)

Short Essays

2. Explain Manovyapara in detail. (10 marks)
3. Write the diagnostic points mentioned in Ayurveda for the assessment of a psychiatric patient (10 marks)
4. Describe the Symptomatology and classification of Apasmara (10 marks)
5. Explain 'Personality disorders' (10 marks)
6. Discuss the concept of 'Bhootonmada' (10 marks)
7. Explain the types of Swapna and their role in psychopathogenesis (10 marks)
8. Explain dravya and adravya chikitsa in manasikaroga. (10 marks)
9. Write about Attention and Perception (10 marks)

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Final year MD Examination 2015

Paper I- ManovyaparasahitamManovigyanam

Model Question Paper

Time : 3 Hrs Max Marks : 100

Long Essay

1) Describe Manovyapara in detail 20 Marks

Short Essays

2) Explain the concept of manasabhava in sareerikaprakruti 10 Marks

3) Discuss Ahamkarikatwam and Annamayatwam of mind 10 Marks

4) Write about the relation between atma and manas 10 Marks

5) Discuss the concept satyabudhi and upadha 10 Marks

6) Relate shadchakras with mind 10 Marks

7) Explain psychoneuroimmunoendocrinology 10 Marks

8) Discuss the concept of individuality of mind 10 Marks

9) Explain defense mechanism of mind 10 Mark

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Final year MD Examination 2015

Paper II- Manovaikarikievambhutavidya

Model Question Paper

Time : 3 Hrs Max Marks : 100

Long Essay

1) Discuss about bhutavidya and its relevance in modern world 20 Marks

Short Essays

2) Explain manasavega and how it leads to manovikara 10 Marks

3) How will you examine a psychiatric patient through Ayurveda? 10 Marks

4) Explain the importance of chidra in grahavesa 10 Marks

5) Write about the role of hereditary factors in psychiatry 10 Marks

6) Explain the concept Prajnaparadha in relation with manasikaroga` 10 Marks

7) Discuss about Anumanapareeksha told by Acharyacharaka 10 Marks

8) Explain the prognosis of manasikaroga 10 Marks

9) Discuss the legal and ethical issues in psychiatry 10 Marks

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Final year MD Examination 2015

Paper III- Manasarogachikitsa

Model Question Paper

Time : 3 Hrs Max Marks : 100

Long Essay

1) Discuss about life style and stress related disorders and their management

20 Marks

Short Essays

2) Explain the role of ghritakalpana in manasikaroga 10 Marks

3) Discuss mood disorders and their ayurvedic co-relation and management

10 Marks

4) Explain the role of medhyarasyana in manasikaroga 10 Marks

5) How will you plan a treatment protocol for Madatyaya 10 Marks

6) Explain personality disorders and their management 10 Marks

7) Explain the mode of action of dhoopa and anjana in manasikaroga

10 Marks

8) Discuss atatwabhinivesa in detail 10 Marks

9) Briefly discuss about Psycho Pharmacology 10 Marks

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Final year MD Examination 2015

Paper IV- ItaraManasachikitsaevam yoga

Model Question Paper

Time : 3 Hrs Max Marks : 100

Long Essay

1) Describe the usage of principles of yoga in ayurvedic psychiatry 20 Marks

Short Essays

2) Discuss pathya-apathya in manasikaroga 10 Marks

3) Explain naishtikichikitsa in manasikaroga 10 Marks

4) Write about the role of Raktamokshana in ayurvedic psychiatry 10 Marks

5) Explain about Transactional analysis and its role in psychiatry 10 Marks

6) Discuss about Achararasayana 10 Marks

7) Explain the mode of action of Sirolepa and Murdhinitaila 10 Marks

8) Discuss about the recent advances in the field of psychiatry 10 Marks

9) Explain transcendental meditation and yoga nidra 10 Marks

3.7 Internal assessment component

Not applicable

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3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause.2.10

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

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(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

GUIDELINES FOR PREPARATION OF PG DISSERTATION

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.

2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures : List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations

6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12

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3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straightforward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

RECORD

CASE NO

Name		OP No	
Age		IP No	
Sex		DOA	
Religion		DOD	
Marital Status		Name of informant	
Occupation		Relation	

Education		Reliability	
Income			
Address			
Tendencies	Suicidal/ homicidal/ epileptic/ dangerous/ destructive / escaping		

Presenting complaints with duration
History of presenting complaints

Past illness	
Information reliability or adequacy	
Pre morbid personality	

Personal history			
Food		Sleep	
Appetite		Bladder	
Bowel		Addictions	
Menstrual History			

Treatment History	
Family History with Pedigree Chart	
Childhood History	

Educational History	
Occupational history	
Sexual and marital history	
Obstetric history	
Social support	
Other relevant history	

Physical examin ation				
Pulse			Respiratory rate	
BP			Heart Rate	

Investigations	

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Mental status examination	
1. General appearance and behavior	
1.1. General appearance	
1.2. Attitude towards examiner	
1.3. Comprehension	
1.4. Gait and posture	
1.5. Motor activity	
1.6. Social manner	
1.7. Rapport	
2. Speech	
2.1. Rate and quantity	
2.2. Volume and tone	
2.3. Flow and rhythm	
3. Mood	
4. Affect	
5. Thought	
5.1. Form and stream	
5.2. Content	
6. Perception	

Cognition (Higher Mental Functions)	
1. Consciousness	
2. Orientation	
3. Attention	
4. Concentration	
5. Memory	
6. Intelligence	
7. Abstract thinking	
8. Insight	
9. Judgment	

Ayurvedic Psychiatric Examination		
1. Manas		
1.1.	Indriyabhigraha	Intact/partially impaired/ grossly impaired
1.2.	Hallucination	Visual/ auditory/ others/nil
1.3.	Illusion	Present/ absent
1.4.	Manonigraha	Present/ absent/ occasionally absent
1.5.	Ooham	Intact/partially impaired / grossly impaired
1.6.	Vichara	Intact/partially impaired / grossly impaired
1.7.	Others	

2. Budhi		
2.1.	Mental deficiency	Mild/ moderate/ severe/ absent
2.2.	Delusions	
2.3.	General information	Good/ bad
2.4.	Immature behavior	Present/ absent
2.5.	Inappropriate laughter	Present/ absent
2.6.	Inappropriate crying	Present/ absent
2.7.	Imitation of diff. sounds	Present/ absent
2.8.	Beating oneself	Present/ absent
2.9.	Others	
3. Samjajnana		
3.1.	Orientation to time	Intact/ partially impaired/ grossly impaired.
3.2.	Orientation to place	Intact/partially impaired / grossly impaired
3.3.	Orientation to person	Intact/partially impaired / grossly impaired
3.4.	Attention	Present / absent / occasionally absent
3.5.	Concentration	Present/ absent / occasionally absent
3.6.	Others	
4. Smrti		
4.1.	Remote memory	Present/ absent / occasionally absent
4.2.	Recent memory	Present/ absent / occasionally absent
4.3.	Immediate retention and recall	Present/ absent / occasionally absent

5. Bhakthi	
5.1. Desire in relation to food	Normal/ more/ less/ perverted
5.2. Desire in relation to dress and hairstyle	Normal/ more/ less/ perverted
5.3. Desire for hot / cold things	Present / absent
5.4. Others	
6. Seela	
6.1. Sleep	Sound/ disturbed/ insomnia/ daysleep/ ……. hours sleep
6.2. Smoking / chewing of tobacco / snuff	Addiction/ occasional use/ nil
6.3. Narcotics / alcohol	Addiction/occasional use/ nil
6.4. Mood	Elated/ depressed/ anxious/ angry
6.5. Diet	Veg/ non veg/ mixed
6.6. Others	
7. Ceshta	
7.1. Inappropriate dancing / singin g / playing music	
7.2. Shouting / running / attacking others	
7.3. Motor activity	Normal / Increased / Decreased
7.4. Speech	Continuous/ irregular/ incoherent/ harsh/ slow /less

8. Acara	
Personal standards	
8.1. Neglect of daily routine and work	
8.2. Habit of cleanliness	
8.3. Obsessions in work	
Social standards	
8.4. Nudity	
8.5. Others	
Manasa Prakriti	
Satvabala	

Dasavidhapareeksha	
1. Dooshyam	
1.1. Dosha	
1.2. Dhathu	
2. Desam	
2.1. Bhoomi	
2.2. Deham	
3. Balam	
3.1. Rogam	
3.2. Rogi	

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4. Kalam	
4.1. Kshanadi	
4.2. Vyadhyavastha	
5. Analam	
6. Prakriti	
7. Vaya	
8. Satwam	
9. Satmyam	
10. Aharam	
10.1. Jaranasakthi	
10.2. Abhyavaharanasakthi	

Nidanapanchakam	
1. Nidanam	
2. Poorvarupa	
3. Roopa	
4. Samprapthi	
5. Upadravam	

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6. Upasaya	
7. Anupasaya	
8. Rogamargam	

Differential diagnosis

Diagnosis	
Provisional	
Final	

Treatment

Chikitsasootram
Internal medications
Treatment procedures

Pathya	
Ahara	
Vihara	
Apathya	
Ahara	
Vihara	

Condition on discharge	

Advice on discharge	

Signature of Scholar Signature of Asst. Professor

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REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Dhanvantari – Shalya
(M.S. (Ayurveda)- Surgery)

(2016 admission onwards)

Course Code 262

M S Shalya tantra-Samanya (General Surgery)
(Prior to 2016 admission)

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Dhanwantari – Shalya tantra (M.S. (Ayurveda) - Surgery) (2016 admission onwards)

Ayurveda Dhanwantari – Shalya tantra Samanya (M.S. (Ayurveda) – General Surgery) **(**Prior to 2016 admission)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities and super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during

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entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Syllabus

Given under curriculum clause no.2.10

2.7 Total number of hours

Given under curriculum clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, compilation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

M.D./M.S.-AYURVEDA PRELIMINARY

PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

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Theory-100 Marks

Teaching Hours:200 Hours

PART-A- 60 Marks

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics
3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.

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4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.

   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati

   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti
6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda

   Fundamental research on concepts of

   Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-

   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

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concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.

Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.

Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional studies

Prospective & Retrospectives studies Cohort studies

Randomized Controlled Trials (RCT) & their types

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Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)
Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives.
National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology.
Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting.
Information on Traditional Knowledge Digital Library (TKDL).

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PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.

   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:

   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:

   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests

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(Dunn)

12. Correlation and regression analysis:

Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

Regression- simple and multiple

13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

I. RESEARCH METHODOLOGY

100 Marks

Teaching Hours 120

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and

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6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15.

Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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IN AYURVEDA

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MS - AYURVEDA PRELIMINARY

AYURVEDA DHANWANTHARI-SHALYA TANTRA

(MS (Ayurveda) - Surgery)

PAPER-II **Theory- 100 marks**

PART A **50 marks**

1. Etymology and definition of Shalya Tantra.
2. Scope and importance of Shalya Tantra.
3. Study of Sushruta Samhita Sutra Sthana.
4. Study of modern surgical clinical methodology.
5. Applied anatomy, physiology and surgical pathology of common surgical conditions including relevant Ayurvedic aspect.
6. Applicability of Shat Kriyakala in the pathogenesis of surgical diseases.
7. Applicability of Prakriti in understanding the causes and role of treatment in surgical diseases.
8. Applicability of basic principles of Ayurveda in Rogi Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha) and latest investigations.
9. Concept of Rakta according to Sushruta.
10. Introduction of clinical and diagnostic methods in Shalya Tantra - X-rays, U.S.G., Endoscopies (for diagnostic and treatment purposes), MRI, CAT scanning and other recent diagnostic tools.
11. Concept and applicability of Sadhya-Asadhya (Prognosis) - Arishtha lakshana.
12. Knowledge of life saving drugs.
13. Emergency conditions and its management.
14. Diagnosis and management of Pranashtha Shalya.

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PART B **50 marks**

1. Yantra and Shastra – Surgical Instruments - Ancient and recent advances.
2. Sterilization – methods and types.
3. Basic knowledge of Sangyaharan – Anaesthesia - Types, methods, indications, contraindications, complications and its management.
4. Concept of Trividha Karma – Purva, Pradhana and Pashchat.
5. Ashtavidha Shastra Karmas.
6. Bandhana Karma – Ancient and recent advances.
7. Kshara Karma – Introduction, types, method of various preparations like Kshara, Kshara Varti, Kshara Pichu and applications.
8. Kshara Sutra – Method of preparation, standardization and applications.
9. Agnikarma – Introduction, types and applications.
10. Raktamokshana – Introduction, types and applications.
11. Application of Panchakarma therapy in surgical practice.
12. Scope of Pathya-Apathya in the management of surgical diseases.

Contents:-

PRACTICAL **100 marks**

1. Hospital duties in OPD, IPD, OT and casualty
2. Case record – 25 cases
3. Surgical cases - observation/performing- 10 cases
4. Knowledge of instruments required in surgical practices.
5. Ayurvedic diagnostic and therapeutic procedures.
6. Fluid therapy and blood transfusion.
7. Contraception and sterilizations.
8. Pre-operative, operative and post operative procedures.

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Distribution of marks (practical):

1. Case records of 25 Patients in detail	20 marks
2. Bedside clinical case taking-	
Long case	20 marks
Short case	10 marks
3. Identification of instruments, X-ray etc	15 marks
4. Medical procedures	15 marks
5. Viva voce	20 marks

REFERENCE BOOKS:-

1. Sushruta Samhita
2. Ashtanga Sangraha
3. Ashtanga Hridaya
4. Charaka Samhita
5. The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya
6. Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma
7. Shalya Vigyan (Part 1-2) - Dr. Surendra Kumar Sharma
8. Shalya Samanvaya (Part 1-2) - Vd. Anantaram Sharma
9. Shalya Pradeepika - Dr. Mukund Swaroop Verma
10. Soushruti - Dr. Ram Nath Dwivedi
11. Clinical Shalya Vigyan - Dr. Akhilanand Sharma
12. Bhagna Chikitsa - Dr. Prabhakar Janardhan Deshpande
13. Kshara sutra management in Anorectal ailments -Dr. S.K. Sharma, Dr. K.R.Sharma and Dr. Kulwant Singh.
14. Anorectal diseases in Ayurveda - Dr. Sizoria and Dr. Praveen Kumar Chowdary.
15. Adhunika Shalya Chikitsa Siddanta - Dr. Katil Narshingham Udupa

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16. Agnikarma Technology Innovation - Dr. P.D. Gupta
17. Shalya Tantra Ke Siddhant - Dr. K.K.Takral
18. Recent advances in the management of Arshas /Haemorrhoids - Dr. P. Hemantha Kumar
19. Arsha Evum Bhagander Mein sutra Avacharan- Vd. Kanak Prasad Vyas
20. Recent advances in Kshara Sutra - Dr. M. Bhaskar Rao
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36. Anushastra Karma - Dr. D.N. Pande
37. Concept of Vrana is Ayurveda - Dr. Lakshman Singh
38. Significance for Poorva Karma in Surgical Patient - Dr. Lakshman Singh
39. Sangyaharan Prakash - Dr. D.N. Pande
40. A concise Text Book of Surgery - S. Das
41. A manual on Clinical Surgery - S. Das

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42. A System of Surgical Diagnosis -T.N. Patel
43. A Practical Guide to Operative Surgery - S. Das
44. Drugs and Equipment for Anaesthesia - Arun kumar
45. Manual of Surgical Instruments - M.M. Kapur
46. Ward Procedures - Patel Mansukh. B
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49. Synopsis of Anaesthesia - Lee
50. Clinical Anatomy/ Surgical Anatomy - John E.Skandalakis
51. Surgical Instruments of the Hindus - Girindharnath Mukopadyay
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54. Recent trends in the management of Bhagandara / Fistula-in-ano - Dr. P. Hemantha Kumar
55. Principles and Practice of Agnikarma - Dr. Anand Kumar and Dr. Kanchan Shekokar.
56. Manipal Manual of Surgery - Dr. Rajgopal Shenoy

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Final M.S. Ayurveda

SHALYA TANTRA – SAMANYA

Theory- 400 Marks (100 Each)

Practical and Viva-Voce -100 Marks

PAPER – I **100 Marks**

SHALYA SIDDHANTA – FUDAMENTALS OF SURGERY

1. Sushruta's contributions in surgical concepts and practices.
2. Knowledge of Dosha, Dhatu and Mala Vigyan and their importance in surgical diseases.
3. Significance and importance of Rakta as the Chaturth Dosha.
4. Yantras and Shastras – Surgical Instruments – Ancient and recent advances.
5. Trividha Karma – Purva, Pradhana and Pashchat Karma and their Importance.
6. Asepsis and Antisepsis.
7. Nirjivikarana – Sterilization – Various methods for surgical equipments, endoscopies, linen and Operation theatre.
8. Surgical infections – Sepsis, Tetanus and Gas gangrene.
9. Care of patients suffering from Hepatitis, HIV-AIDS, STD and other associated infectious diseases.
10. Ashtavidha Shastra Karma – Critical knowledge and their application in surgical practice.
11. Suturing materials, appropriate use of sutures, drains, prosthetic, grafts and surgical implants.
12. Concept of Marma and their clinical application.

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13. Shock – Its varieties and management.
14. Raktasrava / Haemorrhage – Types, Clinical features and Management.
15. Concept of Raktastambhana – Haemostasis.
16. Blood Transfusion – Blood groups, compatibility, indications, Contraindications and complications with management.
17. Fluid, electrolyte, Acid Base Balance and Nutrition.
    a. Introduction of physiology of fluids and electrolytes.
    b. Dehydration and over hydration.
    c. Specific electrolyte loss, Acidosis, Alkalosis, Symptomatology and Management.
    d. Electrolyte changes in specific surgical conditions and their management.
    e. Plasma volume expanders and their use in surgical conditions.
    f. Various replacement fluids in surgery, mode of administration and complications.
    g. Nutrition – Indications, types, mode of administration and complications.
18. Vranasopha – Inflammation and Vidradhi – Abscess
19. Granthi- Cyst and Arbuda – Benign and malignant Neoplasm – Concept of Oncogenesis and genetics of cancer.
20. Gulma and Udara Roga.
21. Kshudra Roga.
22. Knowledge of antibiotics, analgesics, anti-inflammatory and emergency drugs in surgical practice.

PAPER – II **100 Marks**

VISHISHTA SHALYA VIGYANA – SHALYA TANTRA SPECIALITY

1. Yogya Vidhi – Practical and Experimental training.

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a. Practice of surgical procedures on different models.
b. Training of Laproscopic and Endoscopic procedures.

2. Vrana – Wound management.
    a. Management of Nija Vrana, Agantuja Vrana, Dushta Vrana and Nadi Vrana.
    b. Vrana Chikitsa – Shasti upakramas, Pathya-apathya.
    c. Types and management of Dagdha Vrana – Burns and scalds.
    d. Infection of hands and foot, Diabetic wound, Prameha Pidaka – Diabetic carbuncle and its management.
    e. Management of Pressure ulcers, Venous ulcers and other chronic non-healing Ulcers.
    f. Gangrene and its management.
3. Mutra Roga – Urological diseases.
    a. Applied anatomy and physiology of urogenital system.
    b. Investigations of Mutravaha Srotas – Urinary tract.
    c. Aetiopathogenesis and surgical procedures of Ashmari – Urinary stone diseases.
    d. Kidney and ureter – Clinical presentation, Investigations and Management of Congenital anomalies, Trauma, Infection, Neoplasm, Hydronephrosis and Hydroureter.
    e. Urinary bladder - Clinical presentation, Investigations and Management of Congenital anomalies, Trauma, Infection, Neoplasm, Diverticulum, Vesico-vaginal fistula, Atony and Schistosomiasis.
    f. Urethra - Clinical presentation, Investigations and Management of Congenital anomalies – Hypospadias, Epispadias, Posterior urethral valve, Trauma, Infection and Neoplasm.

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g. Prostate and seminal vesicles – Benign and malignant enlargement of prostate, Prostatitis, Prostatic abscess and Calculi.

h. Penis – Clinical presentation , Investigations and Management of Congenital anomalies, Trauma, Infection, Phimosis, Paraphimosis, Peyronie's disease and Neoplasm.

i. Testis and scrotum - Clinical presentation , Investigations and Management of Congenital anomalies, Ectopic testis, Trauma, Infection, Neoplasm, Testicular torsion, Hydrocele, Varicocele, Spematocele, Chylocele, Pyocele, Haematocele, Epididymal cyst and Fournier's gangrene.

j. Urinary diversions- Indications, types and techniques.

k. Retention of urine – Mutraghata and Mutrakruccha- Etiology, diagnosis and management.

l. Saraktamutra, Haematuria – Etiology, Clinical features and Management.

m. Renal failure – Causes, Diagnosis, Investigations and Management.

4. Asthi roga and Marma Chikitsa – Orthopaedics

i. Anatomy and physiology of bone.

ii. Diseases of Asthi / Bone and Sandhi /Joints – Congenital, Degenerative, Infective, Metabolic and Neoplastic Disorders of Bones and Joints.

iii. Aetiopathogenesis, treatment along with surgical procedures of Bhagna – Fracture, Sandimoksha – Dislocation and bone grafting.

iv. Diseases of Spine, vertebral column and spinal cord.

PAPER – III **100 Marks**

ADHUNIK SHALYA KARMA – MODERN SURGERY

1. Fundamentals of modern surgery and treatment of surgical disorders including surgical anatomy, physiology and pathology.

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2. Diagnosis and Surgical treatment of head and spine injury, thoracic and abdominal trauma. Blast injuries and management.
3. Diagnosis and Surgical Management of neck disorders e.g. salivary glands, thyroid, Thyroglossal cyst and Fistula, Branchial cyst and fistula, Cystic hygroma and Lympadenopathies.
4. Diagnosis and Surgical management of breast diseases- Benign and Malignant breast tumours.
5. Diagnosis and Surgical measures of diseases of Gastrointestinal system –
    a. Oral cavity – Oral ulcers, Oral cancer, Precancerous conditions, Submucosal fibrosis, Leukoplakia, Cleft lip and palate, Lip tumours, Mucosal cyst, Nasopharyngeal cancer, Tongue ulcer and cancer.
    b. Oesophagus – Oesophageal varices, Dysphagia, Neoplasm, Strictures and Gastro oesophageal reflux.
    c. Stomach and duodenum – Congenital anomalies, Injuries, Inflammation, Ulcer, Neoplasm, Pyloric stenosis, Acute dilatation, Hiatus hernia and Foreign bodies.
    d. Pancreas – Congenital anomlies, Acute and Chronic pancreatitis, Calculi Neoplasm and Cysts of pancreas.
    e. Peritoneum, Omentum, Mesentery, Retroperitoneal Space – Peritonitis, Abscess, Neoplasm, Mesenteric cyst, Torsion of mesentery, vascular thrombosis, retroperitoneal cyst and Fibrosis.
    f. Abdominal mass – Diagnosis and Management.
    g. Small intestine- Congenital anomalies, Inflammation, Ulcer, Neoplasm, Stenosis, Injuries, Foreign bodies, Diverticuli, Peutz-jeghers syndrome, Chron's disease, Carcinoid tumours, Enteric perforation and Intestinal fistula.
    h. Large intestine - - Congenital anomalies, Inflammation, Ulcer, Neoplasm, Stenosis, Injuries, Foreign bodies, Diverticuli, Faecal fistula, amoebic ulcer and

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Familial polyposis coli.

i. Caecum and vermiform appendix – Appendicitis, Appendicular abscess, Appendicular mass, Perforation, Carcinoid Tumor and other Neoplasm.

j. Gastrointestinal bleeding – Haemetemesis, Malaena, Haemobilia, Bleeding per anum – Causes, Diagnosis and Management.

k. Rectum and anal canal – Diagnosis and Surgical management of Congenital Anomalies, Inflammation, Ulcer, Neoplasm, Stenosis, Prolapse, Haemorroids, Fistula-in-ano, Fissure-in-ano, Anorectal Abscess, Incontinence, Injuries, Foreign bodies, Sacrococcygeal Teratomas and Pilonidal sinus.

6. Umbilicus and abdominal wall – Congenital anomalies, Umbilical infections, Sinus, Neoplasm, Abdominal dehiscence, Divarication of recti, Desmoid tumor and Meleney's gangrene.
7. Diagnosis and Surgical measures of diseases of Hepatobiliary system-
    a. Liver – Abscess, Cyst – Hydatid cyst, Primary and secondary malignant tumours, Portal Hypertension and Budd-Chiari Syndrome.
    b. Gall bladder and Bile duct – Congenital anomalies, Acute and Chronic Cholecystitis, Cholelithiasis, Neoplasm, Cholangitis, Stenosis, Choledocholithiasis, Choledochal cyst and Cholangiocarcinoma.
    c. Spleen – Splenomegaly and Splenic Injury.
8. Diagnosis and surgical measures for disorders of Artery, Vein, Ligaments, Muscles and Tendons.
9. Diagnosis and surgical management of Hernias – Inguinal, Femoral, Umbilical, Incisional, Abdominal wall and other hernias.
10. Endoscopic procedures – Oesophagogastroduodenoscopy, Sigmoidoscopy and Colonoscopy.
11. Diagnostic and therapeutic laparoscopy.

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12. Anaesthesia – Definition, Types, Anesthetic agents, Indications, Contraindications, Procedures, Complications and management.

PAPER – IV **100 Marks**

SHALYA VANGMAYA – SHALYA LITERATURE, RESEARCH AND DEVELOPMENT

1. Critical study of the Sushruta Samhita and relevant portions of Shalyatantra in Brihattrayee and Laghutrayee.
2. Knowledge and importance of Surgical Audit.
3. Medico legal issues – Understanding the implications of acts of omission and commission in practice. Issues regarding Consumer Protection Act in medical profession, National Health Policy, Implications in medico-legal cases like accidents, assaults etc.
4. Surgical ethics including Informed consent.
5. Knowledge of different type of experimental Surgical Model for Research in Surgery.
6. Sandhana Karma – Plastic reconstructive and cosmetic surgery. Fundamentals of Sandhana Karma –
    a. Karna Sandhana – Auroplasty
    b. Nasa Sandhana – Rhinoplasty
    c. Ostasandhana – Cheiloplasty
    d. Grafts and Flaps – Techniques and applications.
    e. Vascular anastomosis and grafts.
7. **Anushalya Karma –** Parasurgical procedures
    a. Kshara Karma, Kshara Sutra, Agnikarma and Raktamoskhana.

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Pattern of Practical examination **100 Marks**

1. Case record (25) - 10 Marks
2. Short case - 10 Marks
3. Long case - 20 Marks
4. Identification of specimen / radiograph and Instruments - 20 Marks
5. Thesis Presentation - 20 Marks
6. Viva- voce - 20 Marks

Reference Books

1. Sushruta Samhita
2. Ashtanga Sangraha
3. Ashtanga Hridaya
4. Charaka Samhita
5. The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya
6. Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma
7. Shalya Vigyan (Part 1-2) - Dr. Surendra Kumar Sharma
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15. Adhunika Shalya Chikitsa Siddhanta - Dr. Katil Narshingham Udupa
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25. Text book of Surgery - Sabistan
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29. Text books of Operative Surgery - Farquharsons'
30. Principles of Surgery - Schwartz
31. Emergency Surgery - Hamilton Bailey's
32. Surgical Pathology - Willing Worth
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34. Text book of Operative Surgery - S. Das
35. Shalya Vigyan(Sachitra) - Anantram Sharma
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37. Concept of Vrana is Ayurveda - Dr. Lakshman Singh
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2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

Given under Clasue No. 2.10

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.

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6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.

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15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

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2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha *ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm*

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. Kerala University of Health Sciences, Thrissur.

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9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, the Editor, Scientific Publications Divisions, the Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

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3 EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in a year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

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III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring submitting a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

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2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

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Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

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PG Ayurveda Preliminary Model Question

(Salyatantra – Samanya)

Paper II –Moulika Sidhantha

Time: 3 hrs **Max marks: 100**

Essay

1. Describe the types & stages of Anesthesia and local anashesia with example of epidural anaesthesia in detail.

Short essays **(8x10 = 80)**

2. Discuss the role of CT and MRI in surgical practice
3. Define utsadana karma and avasadana karma. Explain the indications and drugs
4. Clinical features and management of janu sandhi vislesha
5. Describe the sastra karmas and explain the indications and drugs
6. Discuss structural, regional, extensional, numerical and traumatic classification of marmas
7. Common signs and symptoms of cholecystitis with its management
8. Describe the medications & modalities of agnikarma and explain its applications in kadara
9. Describe ancient and recent advance in haemostatic methods

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYATANTRA – SAMANYA

PAPER I - SHALYA SIDDHANTA – FUDAMENTALS OF SURGERY

(20)

Essay **(1×20 = 20 marks)**

1. Describe the concept of trividha karma.

Short essays **(8×10 = 80 marks)**

2. Management of Vranitha.

3. Bandaging materials and techniques.

4. Notes on Marmaaghata.

5. Utility of CT scan in Salyatantra.

6. Healing mechanism of bone and factors influencing the bone healing according to Aurvedic and modern concepts.

7. Stages and management of Vranasopha.

8. Suturing materials and types of suturing.

9. Describe Saptopakarama.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYATANTRA – SAMANYA

PAPER II - VISHISHTA SHALYA VIGYANA

Essay **(1×20 = 20 marks)**

1. Diseases and congenital anomalies of spine.

Short essays **(8×10 = 80 marks)**

2. Note on peripheral vascular disease.
3. Role of panchakarma in marma, asthi and sandhivyadhis.
4. Note on the types of anaesthesia.
5. Investigative procedures of renal calculi.
6. DescribeAshtavidhasastrakarmas.
7. Note on ano rectal abscess.
8. Management of burn.
9. Hazards of X-ray radiation.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYATANTRA – SAMANYA

PAPER III - AADHUNIKA SHALYA KARMA - MODERN SURGERY

Essay **(1×20 = 20 marks)**

1. Etiology, classification, general management principles and prognosis of bhagna

Short essays **(8×10 = 80 marks)**

2. Write a note on external immobilization techniques in fracture.
3. Write a note on shoulder dislocation and its management.
4. Management of acute intestinal obstruction.
5. Diagnostic and therapeutic laparoscopy.
6. Note on Thyroidectomy.
7. Operations on hernia.
8. Management of Haemorrhoids.
9. Operative treatments performed for inguinal hernia.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYA TANTRA - SAMANYA

PAPER IV - SALYA VAGMAYA

Essay **(1×20 = 20 marks)**

1. Contribution of Susruta in the field of Ayurveda.

Short essays **(8×10 = 80 marks)**

2. Surgical ethics.
3. Knowledge and importance of surgical audit.
4. Value of research and teaching in surgery.
5. Sastra karmas mentioned by Caraka.
6. National Health Policy implication in a medico-legal case.
7. Explain anaesthesia in Ayurveda.
8. Importance of emergency surgery according to Susrutha.
9. Issues regarding Consumer Protection Act in medical profession.

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3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10 & 2.25

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

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2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

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(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented; practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

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(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner; the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

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(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

1. Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures: List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any

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7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

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Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %

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4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

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REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Dhanvantari – Shalya
(M.S. (Ayurveda)- Surgery)

(2016 admission onwards)

Course Code 263

M S ShalyaTantra-Khar Karma Avum Anushastra Karma

(Prior to 2016 admission)

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Dhanvantari – Shalya (M.S. (Ayurveda)- Surgery) (2016 admission onwards)

M S ShalyaTantra-Khar Karma Avum Anushastra Karma **(**Prior to 2016 admission**)**

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties

in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration: 3 years

2.6 Syllabus

Given under clause 2.10

2.7 Total number of hours

Given under clause 2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.8 Branches if any with definition :

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

M.D./M.S.-AYURVEDA

PRELIMINARY PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks

Teaching Hours:200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
    a. Definition of the term research
    b. Definition of the term anusandhan
    c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
    a. Selection of the research problem
    b. Literature review: different methods (including computer database) with their advantages and limitations
    c. Defining research problem and formulation of hypothesis
    d. Defining general and specific objectives
    e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
    f. Sample design
    g. Collection of the data
    h. Analysis of data.
    i. Generalization and interpretation, evaluation and assessment of hypothesis.
    j. Ethical aspects related to human and animal experimentation.
    k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee

    (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics
3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
    a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
    b. Different types of referencing and bibliography.
    c. Thesis/Dissertation: contents and structure

d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)

5. Classical Methods of Research.

Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati

Aushadhi-yog Parikshana Paddhati

Swastha, Atura Pariksha Paddhati

Dashvidha Parikshya Bhava

Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.

7. Different fields of Research in Ayurveda

Fundamental research on concepts of

Ayurveda

a. Panchamahabhuta and tridosha.
b. Concepts of rasa, guna, virya, vipak, prabhav and karma
c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

8. Literary Research-

Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.

Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations.
Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.
Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development
-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12.Clinical research:
Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies Longitudinal & Cross sectional studies Prospective & Retrospectives studies Cohort studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP) Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

10. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives. National Pharmacovigilance Programme for ASU drugs.

11. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology. Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

12. Intellectual Property Rights- Different aspect and steps in patenting. Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.

   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:

   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:

   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance

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11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:

    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

I. RESEARCH METHODOLOGY **Teaching Hours 120**

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and toxicology

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6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15.

Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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   Pune.
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IN AYURVEDA

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of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
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3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford

   University Press.
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15. Suhas Kumar Shetty- Medical statistics made easy

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M.S.-AYURVEDA PRELIMINARY

SHALYA - KSHARA KARMA AVUM ANUSHASTRA KARMA

(Para Surgical Procedure including Minimal invasive Surgery)

PAPER-II **Theory- 100 marks**

PART A **50 marks**

1. Etymology and definition of Shalya Tantra.
2. Scope and Importance of Shalya Tantra.
3. Study of Sushrut Samhita Sutra Sthana 1- 46 chapters.
4. Study of modern surgical clinical methodology.
5. Applied anatomy, physiology and surgical pathology of common surgical conditions including r e l e v a n t Ayurvedic aspect.
6. Applicability of Shat Kriyakala in the pathogenesis of surgical diseases.
7. Applicability of Prakriti in understanding the causes and role of treatment in surgical diseases.
8. Applicability of basic principles of Ayurveda in Rogi Pariksha (Trividha, Shadvidha, Ashtavidha and Dashavidha Pariksha) and latest investigations.
9. Concept of Rakta according to Sushruta.
10. Introduction of clinical and diagnostic methods in Shalya Tantra - X-rays, U.S.G., Endoscopies (for diagnostic and treatment purposes), MRI, CAT scanning and other recent diagnostic tools.
11. Concept and applicability of Sadhya-Asadhya- Prognosis – Arishtha Lakshana.
12. Knowledge of life saving drugs.
13. Emergency conditions and its management.
14. Diagnosis and management of Pranastha Shalya.

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PART B **50 marks**

1. Yantra and Shastra – Surgical Instruments - Ancient and recent advances.
2. Sterilization – methods and types.
3. Basic knowledge of Sangyaharn – Anaesthesia - Types, methods, indications, contraindications, complications and its management.
4. Concept of Trividha Karma – Purva, Pradhana and Pashchat.
5. Ashtavidha Shastra Karmas.
6. Bandhana Karma – Ancient and recent advances.
7. Kshara Karma – Introduction, types, method of various preparations like Kshara, Kshara Varti, Kshara Pichu and applications.
8. Kshara Sutra – Method of preparation, standardization and applications.
9. Agnikarma – Introduction, types and applications.
10. Raktamokshana – Introduction, types and applications.
11. Application of Panchakarma therapy in surgical practice.
12. Scope of Pathya-Apathya in the management of surgical diseases.

PRACTICAL **100 marks**

Content:-

1. Hospital duties in OPD, IPD, OT and casualty
2. Case record – 25 cases
3. Parasurgical cases - observation/performing- 10 cases
4. Knowledge of instruments required in parasurgical practices.
5. Ayurvedic diagnostic and therapeutic procedures.
6. Fluid therapy and blood transfusion.
7. Pre-operative, operative and post operative procedures.

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Distribution of marks (practical):

1. Case records of 25 Patients in detail	20 marks
2. Bedside clinical case taking-	
Long case	20 marks
Short case	10 marks
3. Identification of instruments, X-ray etc.	15 marks
4. Medical procedures	15 marks
5. Viva voce	20 marks

REFERENCE BOOKS:-

1. Sushruta Samhita
2. Ashtanga Sangraha
3. Ashtanga Hridaya
4. Charaka Samhita
5. The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya
6. Shalya Tantra Samuchchaya - Pandit Ramadesh Sharma
7. Shalya Vigyan (Part 1-2) - Dr. Surendra Kumar Sharma
8. Shalya Samanvaya (Part 1-2) - Vd. Anantaram Sharma
9. Shalya Pradeepika - Dr. Mukund Swaroop Verma
10. Soushruti - Dr. Ram Nath Dwivedi
11. Clinical Shalya Vigyan - Dr. Akhilanand Sharma
12. Bhagna Chikitsa - Dr. Prabhakar Janardhan Deshpande
13. Kshara sutra management in anorectal ailments - Dr. S.K. Sharma, Dr. K.R.Sharma and Dr.Kulwant Singh.
14. Anorectal diseases in Ayurveda - Dr. Sizoria and Dr. Praveen Kumar Chowdary.

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15. Adhunika Shalya Chikitsa Siddanta - Dr. Katil Narshingham Udupa
16. Agnikarma Technology Innovation - Dr. P.D. Gupta
17. Shalya Tantra Ke Siddhant -Dr. K.K.Takral
18. Recent advances in the management of - Dr. P. Hemantha Kumar
19. Arshas / Haemorrhoids
20. Arsha Evum Bhagander Mein sutra Avacharan -Vd. Kanak Prasad Vyas
21. Recent advances in Kshara Sutra - Dr. M. Bhaskar Rao
22. Leech application in Ayurveda - Dr. M. Bhaskar Rao
23. Kshara Sutra - Dr. S.N.Pathak
24. Shalya Shalakya Tantra -Vd. S.G. Joshi
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26. Text book of Surgery - Sabistan
27. Operative Surgery - Rob and smith
28. Bailey and Love's Short Practice of Surgery - Norman.S. Williams, Charles.V. Mann and R.C.G. Russell
29. Fractures and Joint Injuries - Watson-Jones
30. Text books of Operative Surgery - Farquharsons'
31. Principles of Surgery - Schwartz
32. Emergency Surgery - Hamilton Bailey's
33. Surgical pathology - Willing Worth
34. Clinical methods in surgery - S. Das
35. Textbook of Operative Surgery - S. Das
36. Shalya Vigyan (Sachitra) - Anantram Sharma
37. Anushastra Karma - Dr. D.N. Pande
38. Concept of Vrana is Ayurveda - Dr. Lakshman Singh
39. Significance for Poorva Karma in Surgical Patient - Dr. Lakshman Singh
40. Sangyaharan Prakash - Dr. D.N. Pande
41. A concise Text Book of Surgery - S. Das
42. A manual on Clinical Surgery - S. Das
43. A System of Surgical Diagnosis - T.N. Patel

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44. A Practical Guide to Operative Surgery - S. Das
45. Drugs and Equipment for Anaesthesia - Arun kumar
46. Manual of Surgical Instruments - M.M. Kapur
47. Ward Procedures - Patel Mansukh. B
48. Recent trends in the management of - Dr. P. Hemantha Kumar
49. Arshas / Haemorrhoids
50. Primary Anaesthesia - Maurice King
51. Synopsis of Anaesthesia - Lee
52. Clinical Anatomy/ Surgical Anatomy - John E.Skandalakis
53. Surgical Instruments of the Hindus - Girindharnath Mukopadyay
54. Outline of Orthopedics - John Crawford Adams and David Hamblen. L
55. Outline of Fracture - John Crawford Adams
56. Recent trends in the management of - Dr. P. Hemantha Kumar
57. Bhagandara / Fistula-in-ano
58. Principles and Practice of Agnikarma - Dr. Anand Kumar and
59. Dr. Kanchan Shekokar.
60. Manipal Manual of Surgery - Dr. Rajgopal Shenoy

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Final M.S. Ayurveda

SHALYA – KSHARA EVUM ANUSHASTRA KARMA

Theory – 400 Marks (100 Each)

Practical and Viva-Voce-100 Marks

PAPER -1 **100 Marks**

SHALYA SIDDHANTA – FUNDAMENTALS OF SURGERY

1. Sushruta's contributions in surgical concepts and practices.
2. Knowledge of Dosha, Dhatu and Mala Vigyan and their importance in surgical diseases.
3. Significance and importance of Rakta as the Chaturth Dosha.
4. Yantras and Shastras – Surgical Instruments – Ancient and recent advances.
5. Trividha Karma – Purva, Pradhana and Pashchat Karma and their Importance.
6. Aspesis and Antisepsis.
7. Nirjivikarana –Sterilization – Various methods for surgical equipments, endoscopies, linen and Operation theatre.
8. Surgical infections – Sepsis, Tetanus and Gas gangrene.
9. Care of patients suffering from Hepatitis, HIV-AIDS, STD and other associated infectious diseases.
10. Ashtavidha Shastra Karma – Critical knowledge and their application in surgical practice.
11. Suturing materials, appropriate use of sutures, drains, prosthetic, grafts and surgical implants.
12. Concept of Marma and their clinical application.
13. Shock – Its varieties and management.
14. Raktasrava /Haemorrhage – Types, Clinical features and Management.

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15. Concept of Raktastastambhana – Haemostasis.
16. Blood Transfusion – Blood groups, compatibility, Indications, Contraindications and complications with management.
17. Fluid, electrolyte, Acid Base Balance and Nutrition
    a. Introduction of physiology of fluids and electrolytes.
    b. Dehydration and over hydration.
    c. Specific electrolyte loss, Acidosis, Alkalosis, Symptomatology and Management.
    d. Electrolyte changes in specific surgical conditions and their management.
    e. Plasma volume expanders and their use in surgical condition.
    f. Various replacement fluids in surgery, mode of administration and complications.
    g. Nutrition – Indications, types, mode of administration and complications.
18. Vranasopha – Inflammation and Vidradhi – Abscess
19. Granthi – Cyst and Arbuda – Benign and malignant Neoplasm – Concept of Oncogenesis and genetics of cancer.
20. Gulma and Udara Roga.
21. Kshudra Roga.
22. Knowledge of antibiotics, analgesics, anti-inflammatory and emergency drugs in surgical practice.

PAPER – II **100 Marks**

VISHISTA ANUSHASTRA KARMA

- **Kshara Karma and Prayoga – Therapeutic Chemical Cauterization.**
    a. Introduction of different types of Kshara, Method of preparation, Standardization, pH value, Application, Complicatiions and its management.
    b. Preparation and standardization of Kshara sutra and Kshara Picchu – their application and complications.

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c. Surgical Anatomy and Physiology of Anus and Rectum.

d. Arshas – Nidana, Purvaroopa, Roopa, Samprapti, Prakara and Chikitsa.

e. Haemorrhoids – Aetio-pathogenesis, types and its surgical management.

f. Gudavidradhi – Nidana, Purvaroopa, Roopa, Samprapti, Prakara and its Chikitsa.

g. Anorectal abscesses – Aetio- pathogenesis, types, complications and its surgical management.

h. Other methods of treatment of Haemorrhoids like Rubber band ligation, D.G.H.A.L, Radiofrequency, Ablation, Cryo-surgery, Cautery, Laser, Infrared coagulation and other advanced techniques.

i. Bhagandara – Nidana, Samprapti, Prakara, Doshanusarachikitsa and application of Kshara Sutra.

j. Fistula-in-ano – Definition, Aetio-Pathogenesis, Types, Diagnostic methods and its Surgical, Para Surgical Management including knowledge of fibrin Glue, Advanced Flap Therapies and other recent techniques.

k. Parikartika – Nidana, Samprapti and its Chikitsa.

l. Fissure-in-ano - Aetio-Pathogenesis, types and its surgical management.

m. Sannirudhaguda and its Chikitsa.

n. Anal Stenosis - Aetio-Pathogenesis and its surgical management.

o. Anal Incontinence - Aetio-Pathogenesis and surgical management.

p. Gudagatashalya – Diagnosis and its Management.

q. Foreign body in rectum and anal canal – Method of diagnosis and its Management.

r. Congenital Anorectal disorders and its surgical management.

s. Gudaarbuda and Granthi and its Chikitsa.

t. Anorectaltumour – Types and its surgical management.

- **Agnikarma – Therapeutic cauterization**

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a. Introduction, definition and importance of Agnikarma.

b. Agnikarma – Poorva, Pradhana and Paschat karma, various substances and Shalakas used for Agnikarma and their indications, contra-indications and complications.

c. Diagnosis and management of burn, Dhumopaghata, Ushnavata, Sunburn, Frost bite and Electric burn.

d. Knowledge of modern thermal equipment – Diathermy, Laser therapy, microwave, Ultrasonic technique, Cryo Technique and its uses.

e. Effect of Agnikarma on skin, muscle tissue, nerves, metabolism, blood circulation and infective lesions.

- **Raktamokshana – Bloodletting Procedures**

a. Rakta- Importance, Formation, Panchabhoutikatva, RaktaSthana, Guna, Prakurta Karma and Rakta Sara Purashalakshanas. Suddha and Dushta Rakta Lakshanas. Rakta Pradoshaja Vyadhis.

b. Introduction and importance of Raktamokshana.

c. Indication and contraindication of Raktamokshana.

d. Justification of usage of different types of Raktamokshana in various therapeutic applications.

e. Different types of Raktamokshana – Shastrakritha – Siravyadhana, Prachana and Ashastrakritha – Shringa, Jaluka, Alabu and Ghati.

f. Jalauka – Nirukti, Paryaya, Bhedha, Samgrahana, Samrakshana, Jalaukavacharana Vidhi – Poorva, Pradhana and Paschat karma.

g. Knowledge of Leeches – Morphology, Anatomy, Physiology, Bio-chemical effects of its various constituents present in its saliva.

PAPER – III **100 Marks**

ADHUNIKA SHASTRA KARMA – MODERN SURGERY

1. Fundamentals of modern surgery and treatment of surgical disorders including surgical anatomy, physiology and pathology.

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2. Diagnosis and surgical measures for disorders of vein, artery, ligaments, joints and muscles.
3. Diagnosis and surgical management of neck disorders e.g. salivary glands, thyroid tumours, etc.
4. Diagnosis and surgical management of breast diseases.
5. Diagnosis and surgical management of traumatic disorders – Head injury, thoracic and abdominal trauma.
6. Diagnosis and surgical management of diseases of Gastrointestinal system- stomach, pancreas, peritoneum, omentum, mesentery, retroperitoneal space, small intestine, large intestine and vermiform appendix.
7. Diagnosis and surgical management of Proctological disorders.
8. Diagnosis and surgical measures of diseases of Hepatobiliary system – Liver, gall bladder, bile ducts.
9. Diagnosis and surgical management of diseases of the spleen.
10. Diagnosis and surgical management of diseases of the Urogenital system.
11. Diagnosis and surgical management of diseases of scrotum and testis – Hydrocele, Ectopic testis and undescended testis.
12. Diagnosis and surgical management of Hernias – Inguinal, femoral, umbilical, incisional, abdominal wall and other hernias.
13. Endoscopic procedures – Oesophagogastroduodenoscopy, Sigmoidoscopy and Colonoscopy.
14. Diagnosic and therapeutic laparoscopy.
15. Minimal Access Surgery- Nadi Yantra and their applications and minimal Access surgery, laparoscopic anatomy of abdomen, diagnostic laproscopy, Principles of diathermy, pre and post operative management of laproscopic cases, Laproscopic instruments, clips, staplers and port types, Recognition and management of laproscopic complications, Use and dangers of diathermy, Endoscopic suturing devices. Use and dangers of laser and other energy sources. Advanced

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instrumentation in laproscopic surgery. Harmonic scalpel.

16. Anaesthesia – Definition, Types, Anaesthetic agents, Indicaions, Contraindications, Procedures, Complications and Management.

PAPER – IV **100 Marks**

SHALYA VANGMAYA

1. Thorough study of the Sushruta Samhita including other relevant portions of Brihattrayee and Laghutrayee.
2. Knowledge and importance of Surgical Audit.
3. Value of research and teaching in surgery.
4. Medico legal issues – Understanding the implications of acts of omission and commission in practice. Issues regarding Consumer Protection Act in medical profession, National Health Policy – Implications in a medico-legal case like accidents, assaults etc.
5. Surgical ethics including Informed consent.
6. Knowledge of different type of experimental Surgical Model for Research in Surgery.

Pattern of Practical examination **100 Marks**

1. Case record (25) - 10 Marks
2. Short case - 10 Marks
3. Long case - 20 Marks
4. Identification of specimen / radiograph and Instruments - 20 Marks
5. Thesis Presentation - 20 Marks
6. Viva-voce - 20 Marks

Reference Books

1. Sushruta Samhita
2. Ashtanga Sangraha

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3. Ashtanga Hridaya
4. Charaka Samhita
5. The Surgical instruments of the Hindus - Girindranath Mukhopadhyaya
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46. Ward Procedures - Patel Mansukh. B
47. Recent trends in the management of Haemorrhoids - Dr. P. Hemantha Kumar Arshas /
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49. Synopsis of Anaesthesia - Lee
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51. Surgical Instruments of the Hindus - Girindharnath Mukopadyay
52. Outline of Orthopedics - John Crawford Adams and David Hamblen. L
53. Outline of Fracture - John Crawford Adams
54. Recent trends in the management of - Dr. P. Hemantha Kumar

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Bhagandara / Fistula-in-ano

55. Principles and Practice of Agnikarma - Dr. Anand Kumar and Dr. Kanchan Shekokar.
56. Manipal Manual of Surgery - Dr. Rajgopal Shenoy
57. A manual of Kshara Sootra Karma - Prof. Ramesh Chand arya

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2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

Given under Clasue No. 2.10

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

Given under Clasue No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.

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4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.

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16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clasue No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

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1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha

ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010

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12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

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3 EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

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V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

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QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution

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5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

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Q.P.Code 102284 **Reg. No.:……**

PG Ayurveda Preliminary Examinations

*(***Salyatantra - Kshar Karma Avum Anushastra Karma***)*

Paper II –Moulika Sidhantha

Time: 3 hrs **Max marks: 100**

Answer all questions.

Essay

1. *Describe the types & stages of anesthesia and local anesthesia with example of epidural Anesthesia in detail*

Short essays **(8x10=80)**

2. *Discuss the role of CT and MRI in surgical practice* **(20)**
3. *Define utsadana karma and avasadana karma. Explain the indications and drugs*
4. *Clinical features and management of janu sandhi vislesha*
5. *Describe the sastra karmas and explain the indications & contra indications of Seevanakarma*
6. *Discuss structural, regional, extensional, numerical and traumatic classification of Marmas*
7. *Common signs and symptoms of cholecystitis with its management*
8. *Describe the medications & modalities of agnikarma and explain its applications in Kadara*
9. *Describe ancient and recent advance in haemostatic met*

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYA TANTRA- KSHARA EVUM ANUSASTRA KARMA

PAPER I - SALYATANTRA SIDHANTHA - FUNDAMENTALS OF SURGERY

Answer all questions

Essay **(1×20 = 20 marks)**

1. Describe Shock, its varieties and management.

Short essays **(8×10 = 80 marks)**

2. Explain the concept of Raktasthambana - Haemostasis
3. Explain various methods used for Sterilization of surgical equipment.
4. Detailed description of Suturing materials and types of sutures.
5. Main features of Benign and Malignant tumors.
6. Describe metabolic alkalosis and its management.
7. Stages and management of Vranasopha.
8. Explain about Nadiyantra and its recent advances.
9. Significance and importance of Rakta as chaturthadosa.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYA TANTRA- KSHARA EVUM ANUSASTRA KARMA

PAPER 2 - VISHISHTA ANUSASTRA KARMA

Answer all questions

Essay **(1×20 = 20 marks)**

1. Explain the causes, pathogenesis, types, diagnosticmethods, surgical and parasurgical management in Bhagandara.

Short essays **(8×10 = 80 marks)**

2. Preparation and standardization of Ksharasootra.
3. Indications and contraindications of Raktamoksha.
4. Agnikarma and its management.
5. Complications of Haemorrhoids.
6. Notes on Asastrakritharaktamoksha.
7. Management of burns.
8. Notes on Rectal carcinoma.
9. Method of diagnosis and management of foreign body in rectum and and anal canal.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYA TANTRA- KSHARA EVUM ANUSASTRA KARMA

PAPER III - AADHUNIKA SASTRAKARMA - MODERN SURGERY

Answer all questions

Essay **(1×20 = 20 marks)**

1. Describe the type of anaesthesia, anaesthetic agents and local anaesthetic techniques.

Short essays **(8×10 = 80 marks)**

2. Describe endoscopic procedures.
3. Management of retention of urine.
4. Management of Deep Vein Thrombosis.
5. Complications of Appendectomy.
6. Operative treatments performed for inguinal hernia.
7. Post-operative management of laparoscopic cases.
8. Indications for surgery in BPH and the types of prostatectomy.
9. Management of acute intestinal obstruction.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

SALYA TANTRA- KSHARA EVUM ANUSASTRA KARMA

PAPER IV - SALYA VANGMAYA

Answer all questions

Essay **(1×20 = 20 marks)**

1. Contribution of Susruta in the field of Ayurveda.

Short essays **(8×10 = 80 marks)**

2. Surgical ethics.
3. Knowledge and importance of surgical audit.
4. Value of research and teaching in surgery.
5. Sastra karmas mentioned by Caraka.
6. National Health Policy implication in a medico-legal case.
7. Explain anaesthesia in Ayurveda.
8. Importance of emergency surgery according to Susrutha.
9. Issues regarding Consumer Protection Act in medical profession.

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3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10 & 2.25

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

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1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

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(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

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(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

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(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.

1. Abstract: keep one page, include introduction to conclusion
2. Contents: Add sections and subsections, put page numbers, keep simple
3. Tables and Figures : List separately, clearly numbered with unique titles.
4. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
5. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

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b) Begin with a verb

c) State in a neutral manner

d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.

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2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%

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7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

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REGULATIONS 2016

Syllabus

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Dhanvantari – Shalakya

(M.S. (Ayurveda) - Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry)

(2016 admission onwards)

Course Code 264

MS SHALAKYA TANTRA NETRA ROGA
(Prior to 2016 admission)

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Dhanvantari – Shalakya (M.S. (Ayurveda) - Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry) -2016 admission onwards

Ayurveda Dhanwantri (M.S. – Ayurveda) – Shalakya Tantra Netra Roga (Prior to 2016)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities and super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, and laboratory

during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Syllabus

Given under curriculum clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, compilation works, seminars, paper presentations, group discussions, assignments, clinical /lab training etc.

2.10 Content of each subject in each year

M.D./M.S.-AYURVEDA PRELIMINARY

PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks

Teaching Hours: 200 Hours

PART-A 60 Marks

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.

k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics

3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.

   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati

   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda

   Fundamental research on concepts of

   Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.

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8. Literary Research-

Introduction to manuscriptology: Definition and scope. Collection,conservation ,cataloguing.

Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors, concepts and development of particular body of knowledge.

9. Drug research (laboratory-based)- basic knowledge of the following :

Drug sources: plant, animal and mineral. Methods of drug identification.

Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations.

Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.

Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional

studies Prospective &

Retrospectives studies Cohort

studies

Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)

Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives.

National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology.

Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting.

Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.

   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:

   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:

   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance

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11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)

12. Correlation and regression analysis:

Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

Regression- simple and multiple

13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and

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6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

Instrumental spotting test -20 marks

Clinical protocol writing exercise on a given problem -20 marks

Records:

Research methodology -10 Mark

Medical statistics -10 marks

Viva- Voce -40 Marks

REFERENCE BOOKS:-

Pharmacognosy:

1. Aushotosh Kar "Pharmacognosy & Pharmacobiotechnology" New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford
4. Kokate, CK., Purohit, AP, Gokhale, SB (2010). Pharmacognosy. Nirali

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Pune.

5. Kokate, CK., Khandelwal and Gokhale, SB (1996). Practical Pharmacognosy. Nirali Prakashan. Pune.
6. Trease G E and Evans W C, Pharinacognosy, Bailliere Tindall, Eastbourne, U K.
7. Tyler V C., Brady, L R., and Robers J E., Pharmacognosy, Lea and Febiger, Philadelphia.
8. Tyler VE Jr and Schwarting AE., Experimental Pharmacognosy, Burgess Pub. Co, Minneaplis, Minnesota.
9. Wallis- TE (2011)- reprint. Practical Pharmacgonosy (Fourth Edition) Pharma Med Press, Hyderabad.
10. Wallis T E, Analytical Microscopy, J & A Churchill limited, London.
11. Wallis T E., Text Book of Pharmacognosy, J & A Churchill Limited, London.
12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003).World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

Pharmaceutical chemistry, quality control and drug standardization:

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1to 3.

   Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
2. Brain, KR and Turner, TD. (1975). The Practical Evaluation Phytopharmaceuticals. Wright Scienctechnica, Bristol.
3. Galen Wood Ewing (1985). Instrumental Methods of Chemical Analysis.

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McGraw- Hill College ; Fifth edition

4. Harborne, JB (1973). Phytochemistry Methods. Chapman and Hall, International Edition, London.
5. HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic Pharmacopoeia Vol- III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA
   AND SIDDHA. New Delhi.
6. Kapoor, RC (2010). Some observations on the metal based preparations in Indian System of Medicine. Indian Journal of Traditional Knwoledge. 9(3): 562-575
7. Khopkar, S. M. Analytical Chemistry, New Age International Publishers , 3 rd
   edition
8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
9. Mahadik KR, Bothara K G. Principles of Chromatography by, 1st edition, Nirali
   Prakashan.
10. Qadry JS and Qadry S Z., Text book of Inorganic Pharmaceutical and Medicinal Chemistry, B. S. Shah Prakashan, Ahmedabad.
11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO-
    Geneva.
12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)

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15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt

Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants - INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

Biochemistry and Laboratory techniques:

1. Asokan P. (2003) Analytical Biochemistry, China publications,
2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
3. David Frifelder. W. H. Freeman. (1982). Physical Biochemistry by; 2 edition
4. David Sultan (2003).Text book of Radiology and Imaging, Vol-1, 7th Edition.
5. Deb, A.C., Fundamentals of Biochemistry, Books and Allied (P) Ltd, 2002.
6. Harold Varley. Practical Clinical Bio-chemistry
7. Kanai L.Mukherjee. Clinical Pathology:,Medical Laboratory Technology Vol. I.Tata McGrawHill 1996, New Delhi.
8. GradWohl, Clinical Laboratory-methods and diagnosis, Vol-I
9. Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I.Churchill Livingstone (P) Ltd, New Delhi.2000.
10. Satyanarayanan,U. Essentials of Biochemistry, Books and allied(P) Ltd.2002
11. Zubay, G.L. Biochemistry, W.M.C. Brown Publishers, New York 1998.
12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

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Research methodology:

1. Alley, Michael. The craft of scientific writing. Englewood Cliffs. N.N. Prentice 1987.
2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
3. Altick and Fensternmaker. (2007).*The Art of Literary Research*. 4th ed. W. W. Norton. Castle, Gregory. *Blackwell Guide to Literary Theory*. Blackwells,
4. Bowling, A. (2002). Research Methods in Health (2nd ed). Buckingham: Open
   University Press.
5. Day R.A. How to write a scientific paper. Cambridge University Press.
6. Cooray P.G. Guide to scientific and technical writing.
7. Deepika Chawla and Neena Sondhi. (2011). Research Methods- Concepts and cases. New Delhi: Vikas Publishing House.
8. Greenhalgh, T. (2006) How to Read a Paper: The Basics of Evidence-Based
   Medicine. (3rd ed) Blackwell
9. Kothari- CR (2004). Research Methodology- Methods and Techniques (Second Revised Edition). New Age International Publishers- New Delhi.
10. Kumar, R. 2005. *Research Methodology: a Step-by-Step Guide for Beginners, 2nd*
    ed. Thousand Oaks, CA, London: Sage Publications.
11. Petter Laake, Haakon Breien Benestad and Bjørn Reino Olsen. (2007). Research Methodology in the Medical and Biological sciences. Academic Press is an imprint of Elsevier, 84 Theobald's Road, London WC1X 8RR, UK. ISBN: 978-0-12-373874-5
12. Relevant portions of Ayurvedic Samhitas and other texts

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Drug research and development:

1. RICK NG, (2009). DRUGS- from discovery to approval. John Wiley & Sons, Inc., Hoboken, New Jersey
2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061

   110 3 (NLM Classification: WB 925).
3. Jagdeesh, Sreekant Murthy, Gupta, YK and Amitabh Prakash Eds. Biomedical Research (From Ideation to Publication) (2010). Wolters Kluwer/ Lippincott

   Williams and Wilkins.
4. WHO Guidelines on Safety Monitoring of herbal medicines in pharmacovigilance systems. (2004). WHO- Geneva. ISBN 92 4 1592214.
5. Natural products isolation. (2006) 2nd ed. / edited by Satyajit D. Sarker, Zahid Latif, Alexander I. Gray. (Methods in biotechnology; 20). Includes bibliographical references and index. Humana Press Inc. ISBN 1-58829-447-1 (acid-free paper) –

   ISBN 1-59259-955-9 (eISBN)
6. Gazette Extraordinary Part- II-Section 3 - Sub section (i) December 2008. Govt of India. AYUSH Guidelines on safety studies- Rule 170 of Drugs and Cosmetics Act.
7. OECD (2000) Guidance Document on Acute Oral Toxicity. Environmental Health and Safety Monograph Series on Testing and Assessment No

   24.
8. OECD Guideline for the Testing of Chemicals – Repeated Dose 90-day Oral Toxicity Study in Rodents, 408, 1998.

   http://browse.oecdbookshop.org/oecd/pdfs/free/9740801e.pdf(latest

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9. OECD Series on Principles of Good Laboratory Practice (GLP) and Compliance Monitoring, 1998.http://www.oecd.org/document/63/0,2340,en_2649_34381_2346175_1_1_1_1,00.html
10. ICH Harmonised Tripartite Guideline (2000). Maintenance of the ICH Guideline on Non-clinical Safety Studies for t he conduct of Human Clinical Trials for Pharmaceuticals M3 (R1).
11. Ghosh M.N.: Fundamentals of Experimental Pharmacology, *Scientific Book Agency.Bombay.*\

12- Jaju B.P.: Pharmacological Practical Exercise Book, *Jaypee Brothers, New Delhi.* 13- Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan,New Delhi*

14- Ravindran R.: X-Pharm (Software), Indian Journal of Pharmacology, *JIPMER, Pondicherry.*

Biotechnology and Bio-informatics:

1. Angela M. Meireles A (2009). Extracting Bioactive compounds for food products.
   Theory and applications. CRC- Press Taylor and Francis Group.
2. Bergeron BP 2002 Bioinformatics Computing 1st Edition, Prentice Hall
3. Chikhale, N.J. and Virendra Gomase, Bioinformatics- Theory and Practice, Publisher: Himalaya Publication House, India; 1 edition (July, 2007) ISBN-13: 978- 81-8318-831-9
4. Lesk, A.M. Introduction to Bioinformatics Oxford 2002.
5. Satyanarayana, U.: Biotechnology, Books and Allied (P) Ltd, Kolkata, 2005

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8. http://www. zygogen.com.
9. http://www.dsir.nic.in/reports/tifp/database/metallo.pdf.
10. www.consort-statement.org
11. www.strobe-statement.org
12. www.icmr.nic.in

Clinical Evaluation:

1. CDSCO, Good Clinical Practices For Clinical Research in India, Schedule Y (Amended Version – 2005),http://cdsco.nic.in/html/GCP1.html
2. Ethical Guidelines for Biomedical Research on Human subjects. (2000). Indian
Council of Medical Research- New Delhi.
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7. NCI. *Clinical Trials Education Series*. http://www.cancer.gov/clinicaltrials/ learning/clinical-trials-education-series, 2001.
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9. William C. Scheffer Introduction to Clinical Researchs

Medical Statistics:

1. Armitage, P. and Berry, G. (1994) Statistical Methods in Medical Research (3rd ed). Blackwell Science.
2. Armitage P, Berry G, Matthews JNS: *Statistical Methods in Medical Research*. Fourth edition. Oxford, Blackwell Science Ltd; 2002
3. Bland, M. (2000) An Introduction to Medical Statistics (3rd ed). Oxford: Oxford University Press.
4. Bradford Hill – Basic Medical Statistics
5. Cambell, M.J. and Machin, D. (1993) Medical Statistics: A Common Sense Approach (2nd ed). Chester: Wiley.

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6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi –1.
7. Gupta S.P. - Fundamentals of statistics, Sultan Chand. Delhi.
8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences. Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.
12. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trails. Published by the Pharmaceutical Press- An imprint of RPS Publishing,1 Lambeth High Street, London SE1 7JN, UK
13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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M.S.-Ayurveda

Ayurveda Dhanvantari – Shalakya (M.S. (Ayurveda)- Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry)

Preliminary Examination

PAPER-II **Theory- 100 marks**

PART – A 50 marks

1. Shalakya Tantra Parichaya and Itihas.
2. Sharir and Study of Dosha, Dhatu, Mala and Srotas in context of Netra, Karna, Nasa, Shiro, Kantha and Mukha and Study of Marmas related to Shalakya Tantra.
3. Updated knowledge of Agropaharaniya in Shalakya - incorporating sterilization, Sangyaharana (Anaesthesia).
4. Basic pharmacology of common drugs required in diagnostic and therapeutic procedures used in shalakya tantra.
5. Vrana Siddhanta – Trividha Shopha, Shuddha – Ashuddha Vrana, Vrana Srava, Vrana Bandha, Vranitopasana in context to Shalakya Tantra.
6. Swasthavritta related to Shalakya.
7. Applied knowledge of various Kriyakalpas – Seka, Aschyotana, Pindi, Vidalaka, Tarpana, Putapaka and Anjana
8. Applied knowledge of various Urdvanga Kriyakalpas – Nasya, Karnapooran, Karnadhoopan, Kaval, Gandusha, Shirobasti and Shirodhara related to Shalakya Tantra.

PART – B, 50 marks

1. **Netra**
    a. Applied anatomy and physiology of eye, its adnexa and visual pathway.
    b. Clinical methods of eye examination, Application of various aids and techniques in the examination of eye – Refraction, Direct Ophthalmoscopy, Tonometry, and Slit Lamp examination with their interpretation.
    c. Classification of netra roga and applied aspects of samanya nidana, samprapti, sadyasadyata and samanya chikitsa of Netraroga along with Pathya-Apathya.

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2. **Karna**
    a. Applied anatomy and Physiology of ear and related structures.
    b. Clinical methods and knowledge of common aural diagnostic equipments, procedures and their interpretation.
    c. Classification and applied aspects of samanya nidana and sadyasadyata of Karna roga.
3. **Nasa**
    a. Applied anatomy and physiology of nose and paranasal sinuses.
    b. Clinical methods and knowledge of common nasal diagnostic equipments, procedures and their interpretation.
    c. Classification and applied aspects of samanya nidana and sadyasadyata of Nasa roga.
4. **Kantha**
    a. Applied anatomy and physiology of throat.
    b. Clinical methods and knowledge of common pharyngeal and laryngeal diagnostic equipments, procedures and their interpretation.
    c. Classification and applied aspects of samanya nidana and sadyasadyata of Kantha roga.
5. **Shiras**
    a. Clinical methods and knowledge of common diagnostic equipments, procedures and their interpretation.
    b. Classification and applied aspects of samanya nidana and sadyasadyata of Shiras and Kapaal roga.
6. **Mukha**
    a. Applied orodental anatomy and physiology.
    b. Clinical methods adopted in orodental practices.
    c. Knowledge of advanced diagnostic techniques, equipments and tests of importance in orodental practices with their interpretations.
    d. Classification and applied aspects of samanya nidana and sadyasadyata of Oshtha, Danta, Dantamula, Jihva, Talu and Sarvasar Mukha rogas.

PRACTICAL 100 marks

Contents:

1. Clinical posting in OPD/IPD/KriyakalpaKakshaand OT
2. Clinical case presentation (10 cases)
3. Case record (20 cases)
4. Hands on training in Kriyakalpa

Distribution of marks (practical):

1. Case Record - 20 Marks
2. Bed side examination

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a. Long case - 20 Marks
b. Short case - 10 Marks

3. Kriyakalpa procedure - 15 Marks
4. Identification of specimens, radiograph and Instruments - 15 Marks
5. Viva-voce - 20 Marks

Reference Books

1. Charaka Samhita with commentaries
2. Sushruta Samhita with commentaries
3. Astanga hridaya and Astanga sangraha with commentaries
4. Madava nidana with commentaries
5. Bhavaprakasha with commentaries
6. Sarangadhara Samhita with commentaries
7. Sahasrayoga
8. Relevent parts of Chakradatta, Bhela Samhita, Harita Samhita
9. Shalakya tantra Kriya kalpa vigyan - Prof.K.S.Dhiman
10. Shalakya Tantra - Dr. R.C. Chaudhary
11. The Actions and uses of Indigenous Ophthalmic Drugs - Dr. N.Srikanth
12. Clinical Examination of Ophthalmic Case - Agarwal and Gupta
13. Alder's Physiology of the Eye and Clinical Applications - Cotlier, St. Louis
14. Disease of the Lens and Vitreous, Glaucoma and Hypotony - Duke Elder, St.Louis
15. A Text Book of Ophthalmology - Ahmed E
16. A Text book of clinical ophthalmology - Dhanda
17. Modern Ophthalmology - Dutta, L.C. Jaypee Brothers
18. Manual of the Diseases of the Eye -May,C.and Worth,C. Bailliere Tindal and Castell
19. Ophthalmology – Principles and Concepts - Newell, F.W., C.V. Mosby Co., St. Louis.
20. Ocular Differential Diagnosis -Roy Fedrick Hamptn Lea and Febiger

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21. Clinical Ophthalmology- Smith, R.Verghese Company
22. Abrahm Manual of Refraction -Duke and Elder
23. Hand Book of ophthalmology - B.M. Chaterjee
24. Text Book of ophthalmology - Dr. Nithin Nema, Dr.H.V.Nema
25. Clinical ophthalmology - Kanski
26. Parsons Diseases of Eye
27. Stallard's Eye Surgery
28. Modern books related to ENT disorder
29. Diseases of Nose Throat and Ear - Bhargav Shah
30. Diseases of Nose Throat and Ear, Head and Neck- EB Edr.
31. A Textbook of otorhinololaryngology - Scott Browns editions.
32. Text book of Ear Nose Throat diseases – Dhingra
33. Textbook on ENT – Mohd. Maqbool
34. Logan Turner's book on ENT
35. Ballengers text book of ENT
36. Kumin's text book of ENT
37. Rob Smith's book of ENT surgery
38. Paprella's book of ENT
39. Hazarika's text book on ENT
40. Books on examination of ENT
41. Audiology Anirwan Biswas
42. Kurt's Audiology
43. Books on Speech therapy
44. Nimi Tantra - Ramanath Dwivedi
45. Dental Anatomy Histology - Dr. S.I. Bhalajhi
46. Essentials of Preventive and Community Dentistry -Dr. Soben Peter
47. Complete Denture Prosthodontics - Dr. J.J. Manappallil
48. Orthodontics the Art and Science - Dr. S.I. Bhalajhi
49. Text book of Pediatric Dentistry - Dr. S.G. Damle
50. Text book of Oral and Maxillofacial surgery -Dr. Vinod Kapoor

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51. Clinical Periodontology - Dr. B.R.R. Varma
52. Anatomy for Dental Students - Inderveer Singh
53. Clinical Periodontology - Carranza , Newman
54. Operative Dentistry - M A Marzouk
55. Oral and maxilofacial surgery secrets - A.Omar Abubaker
56. Killey and Kay's Outline of Oral Surgery - Girdon R Seward
57. Clinical Dentistry - Ivor G. Chestnut , John Gibson
58. Synopsis of Oral Pathology - S N Bhaskar
59. Oral Pathology - Stone

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Final Year Shalakya Syllabus

(Prior to 2016 admission)

Theory Four papers – 100 Marks each

Practical and Viva-voce- 100 Marks

AYURVEDA DHANWANTRI- SHALAKYATANTRA –

NETRA ROGA VANGMAYA

PAPER-1 **100 Marks**

Part –A

1. Available literature of Netra roga vigyana in Brihattrayi, Laghuttrayi, Yogaratnakar, Chakradutta, Bhela Samhita, Harita samhita and Kashyapa samhita.
2. Critical analysis of the available literature of netra roga vigyana in the above given Classics on various diseases.
3. Unique/ specific contribution of different classics, Acharyas and commentators in the development of Netra roga vigyana.

Part –B

1. Analytical determination of subjects related to eye disorders in ancient and modern literatures.
2. Chronological development of Netra roga vigyana right from Vedic period.
3. Chronological development of Ophthalmology.

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PAPER –II **100 Marks**

AYURVEDEEYA NETRA ROGA VIGYAN

Part –A

1. Enumeration and classification of Netra Rogas.
2. Descriptive knowledge of etiology, pathogenesis, prodromes , clinical features, complications and prognosis of pakshma –vartma- sandhi- - shukla- Krishna- dristi & sarvagata rogas along with exogenous eye diseases available in Ayurvedic classics. Medical and surgical Management of the above diseases with special skill development in Ashtavidha shastra & Trividha Anushastra chikitsa related to Netra roga.

Part –B

1. Netra kriya kalpa procedures like seka, ashchyotana, vidalaka, pindi, tarpana, putapaka & anjana and their practical application and analysis based on ocular pharmacology. Standard operative procedures for Kriyakalpas including oushadha kalpanas.
2. Study of nayanabhighata and its management and prevention.
3. Knowledge of preventive and community ophthalmology along with national programme for control of blindness and role of Ayurveda.
4. Ayurvedic Concept of Congenital, developmental and neoplastic diseases of netra.

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PAPER –III **100 Marks**

ADHUNIK NETRA ROGA VIGYAN

Part –A

1. Knowledge and application of current diagnostic techniques, equipments and therapeutics in Ophthalmology.
2. Detailed study of refractive errors, defects of accommodation and their management.
3. Detailed knowledge of classification, etiology, pathogenesis, clinical features, differential diagnosis, prognosis and complications of diseases of orbit, lacrimal apparatus, lids, conjunctiva and cornea.

Part –B

1. Detailed knowledge of classification, etiology, pathogenesis, clinical features, differential diagnosis, prognosis and complications of diseases of sclera, uveal tract, lens, vitreous, retina, optic nerve and visual pathway with comprehensive knowledge of their medical and surgical management.
2. Ocular trauma and management.
3. Ocular motility disorders and their medical and surgical management.
4. Neurological and systemic disorders affecting the eyes and their management.

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PAPER –IV **100 Marks**

RECENT ADVANCES IN NETRA CHIKITSA & OPHTHALMOLOGY

Part –A

1. Update in the development of Ayurvedic drug formulations, therapeutic procedures and treatments of Netra roga.
2. Advanced technologies in the diagnosis of anterior segment eye diseases.
3. Updated knowledge on medical & surgical management of Netra roga.

Part – B

1. Advanced technologies in the diagnosis of posterior segment eye diseases.
2. Detailed study of recent research works on chakshushya dravyas.
3. Comparative and critical analysis of modern ocular surgery and Ayurvedic netra sastra karmas.

Pattern of practical/ Clinical training

1. Posting in OPD, IPD, OT & Kriya kalpa Kaksha.
2. Case presentation, clinical discussion, Seminars & Work shops.
3. Skill development in Ashtavidha shastra karma, Trividha Anushastra Karma and Modern Ophthalmic Surgical procedures viz lid surgery, pterygium surgery, cataract surgery, squint surgery, glaucoma surgery, DCR & DCT etc.

Methods of Training

- Intensive integrative training would be imparted to scholars in understanding the classical Ayurvedic aspects with an emphasis of critical comparative interpretation.
- Mandatory participation of scholars in seminars, group discussions, clinical demonstrations, journal review meetings, case study, continuing education activities and research clinical projects.
- During the first year of the course, the emphasis would be laid to impart adequate knowledge on fundamental aspects and their applications, with a focus on latest

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diagnostic tools, instrumentations and laboratory procedures. Practical orientation and hospital based clinical training is an integral part of the curriculum all through.

- In the second year, training would stress upon extending the knowledge on techniques and imparting skill for surgical performance, ophthalmic procedure based therapies, surgical/para surgical procedures so that the scholar is able to perform ophthalmic surgical procedures like Ashtavidha shastra karma, Trividha Anushastra Karma and Modern Ophthalmic Surgical procedures viz lid surgery, pterygium surgery, cataract surgery, squint surgery, glaucoma surgery, DCR & DCT etc independently.
- In the third year the scholar should concentrate on the clinical work and research work based on the dissertation.
- The participation of the scholars in all the aspects of educational process is mandatory.
- Hospital postings – The resident has to compulsarily work for 6 terms of posting. Each term shall be of 4 months.
- The student should also contribute in the academic work of the department.

Pattern of practical Examination **100 Marks**

1. Bed side examination
   a. Two short Cases of 10 Marks each - 20 Marks
   b. Long Case - 20 Marks
2. Identification of specimen / Instrument /Radiograph - 10 Marks
3. Thesis Presentation - 10 Marks
4. Teaching skill - 10 Marks
5. Viva Voce - 30 Marks

Reference Books

1. Charaka Samhita with commentaries
2. Sushruta Samhita with commentaries
3. Astanga hridaya and Astanga sangraha with commentaries

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4. Madhava nidana with commentaries
5. Bhavaprakasha with commentaries
6. Sarangadhara Samhita with commentaries
7. Sahasrayoga
8. Relevent parts of Chakradatta, Bhela Samhita, Harita Samhita
9. Shalakya tantra Kriya kalpa vigyan - Prof.K.S.Dhiman
10. Shalakya Tantra - Dr. R.C. Chaudhary
11. The Actions and uses of Indigenous Ophthalmic Drugs - Dr. N.Srikanth
12. Clinical Examination of Ophthalmic Cases - Agarwal and Gupta
13. Alder's Physiology of the Eye and Clinical Applications - Cotlier, St. Louis
14. Disease of the Lens and Vitreous, Glaucoma and Hypotony - Duke Elder, St.Louis
15. A Text Book of Ophthalmology - Ahmed E
16. A Text book of clinical ophthalmology - Dhanda
17. Modern Ophthalmology - Dutta, L.C. Jaypee Brothers
18. Manual of the Diseases of the Eye - May,C.and Worth,C. Bailliere Tindal and Castell
19. Ophthalmology – Principles and Concepts - Newell, F.W., C.V. Mosby Co., St. Louis.
20. Ocular Differential Diagnosis - Roy Fedrick Hamptn Lea and Febiger
21. Clinical Ophthalmology - Smith, R.Verghese Company
22. Abrahm Manual of Refraction - Duke and Elder
23. Hand Book of ophthalmology - B.M. Chaterjee
24. Text Book of ophthalmology - Dr. Nithin Nema, Dr.H.V.Nema
25. Clinical ophthalmology - Kanski
26. Parsons Diseases of Eye

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27. Stallard's Eye Surgery

2.11 No: of hours per subject (lecture-tutorial-seminar-group discussion)

See Curriculum Clause No. 2.10

2.12 Practical training given in labs/supervision (No: of hours for each exercise/training)

See Curriculum Clause No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.

2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.

3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.

4. For approving the title a scrutiny Committee shall be constituted by the University.

5. The University should display the approved synopsis of dissertation on their website.

6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.

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7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.

9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.

10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary ,conclusion, and references cited in the dissertation should be suitable for publication

11. The dissertation shall consist of not less than forty thousand words.

12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.

13. The guide or supervisor shall be a person of status of a professor or Associate professor, Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.

14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.

15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.

16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.

17. If the dissertation is not accepted by two external examiners, the same shall be

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returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.

18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

See Curriculum Clause No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor-*AYU*, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, *Gujarat Ayurved University*, www.ayujournal.org/

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Chief Editor Prof. P.K. Prajapati

Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha ***ccras****.nic.in/publication/****Journal****ofResearchinAyurvedaSiddha.htm Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012

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16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD

3 EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and practical subjects in 2 nd & 3 rd years separately is required

3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

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Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;

b. The final examination shall be conducted on completion of three academic years after commencement of PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

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f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.

The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

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3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

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MODEL QUESTION PAPER

Ayurveda Preliminary Examination

Ayurveda Dhanvantari

(M.S. (Ayurveda) - Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry)

Paper II Shalakya Moulika Sidhantha

Time: 03 hours ANSWER ALL QUESTIONS Marks: 100

Essay (1×20 = 20 marks)

1. Enumerate and describe Urdwajatrugata Marmas (उर्द्धजत्रुगत मर्म) and their relevance as per modern anatomy. Explain the uses of Marmavijnana in the therapeutic aspects of Shalakya Roga chikitsa.

Short essays (8×10 = 80 marks)

2. Contributions of Laghutrayee in Shalakyatantra.

3. Explain the importance of Vranavijnana (व्रण विज्ञान) for understanding the pathology of Karna roga and Mukharoga.

4. Explain the Clinical anatomy of teeth. Detail the procedure of Tooth extraction mentioned in Ayurveda.

5. Detail the importance of Vasthi in the management of Shalakyarogas.

6. Detail the patha-Apathya of Karna roga. Detail its importance in the present era.

7. Enumerate Netra kriyakalps. How it can be used in the prevention of Netrarogas.

8. Explain the etiology and management of Nasagatharakthapittha (नासागतरक्तपित्त) (Epistaxis). Describe the emergency management described in Ayurveda for arresting the bleeding.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

(Shalakya - Netra Roga Vigyan)

Paper 1- Netra Roga Vangmaya

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Critically analyse the Vatmarogas explained in the Susrutha Samhitha and Vagbhata Samhitha. What are the contributions made by Dalhana in this context? Explain with examples.

Short essays **(8×10 = 80 marks)**

2. Describe the chronological development of Netra Kriyakalpas.

3. Explain the brief history and development of Shalakyatantra. Comment on its position in Ashtanga Ayurveda.

4. Discuss the Embryology of Netra described in Ayurveda.

5. Explain the concept of Vrana in the diagnosis and management of Netrarogas.

6. What are the specific Netraroga nidanas explained by Bhavamisra in addition to Susruta? Critically analyze these Nidanas in light of modern knowledge.

7. Discuss the chronological development of cataract surgery.

8. Explain the concept of Alochakapittha explained by Bhela. Write the clinical importance of this concept with modern view.

9. Discuss and justify the classification of Netrarogas described in Ayurveda and modern.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

(Shalakya - Netra Roga Vigyan)

Paper II - Ayurvediya Netra Rog Vigyan

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Enumerate Sarvakshirogas. What are the surgical and parasurgical procedures adopted for its management? Explain *Sasopha* and *Asopha* Netrapaka in detail with management.

Short essays **(8×10 = 80 marks)**

2. Differentiate between *Puyalasa* and *Puyasrava* along with management
3. Discuss the prognosis of *Savrana* and *Avrana Shukla* in detail
4. What are the exogenous eye diseases explained in Ayurveda? Explain the clinical features and management.
5. Explin the Surical managemet of Pakshmoparodha in detail.
6. Describe the indications, contraindications and complications of Anjana karma.
7. Differentiate Sirapitaka and siraharsha. Discuss the management in detail.
8. Explain Pitthavidagdha and Kaphavidagdha. What are the specific treatments explained by Susrutha for its management?
9. Describe National programme for control of blindness. Explain the role of Ayurveda in preventive and community ophthalmology.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

(Shalakya - Netra Roga Vigyan)

PAPER – III Adhunik NetraRogVigyan

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Describe the classification, etiology, pathogenesis, signs and symptoms and complications of glaucoma. Discuss the medical and surgical management with latest trends.

Short essays **(8×10 = 80 marks)**

2. Describe the Anomalies of accommodation

3. What are Mydriatics and Mydriolytics? Explain the common Mydriatics and Mydriolytics used in Ophthalmology with basic pharmacology.

4. Explain the different types of squint. Discuss the medical and surgical managements.

5. Discuss fluorescein Fundus Angiography. Explain its uses in the diagnostic and therapeutic aspect of diabetic retinopathy.

6. Describe the etiology, pathology and management of ecchymosis of conjunctiva.

7. Explain the etiology, pathogenesis, signs and symptoms of optic neuritis. What are the immediate treatments recommended?

8. Discuss the various diseases manifesting in the lacrimal apparatus with important diagnostic tools.

9. Explain optics of normal eye. Describe the various types, clinical features, and surgical treatments available for Myo

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Final Year PG Ayurveda Degree Examinations

(Shalakya - Netra Roga Vigyan)

PAPER – IV Recent Advances in NetraChikitsa & Ophthalmology

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Explain the indications, contraindications, procedure and post-operative care of Linganashavedha. Critically analyze this surgery with all the complications mentioned during the procedure.

Short essays **(8×10 = 80 marks)**

2. Advanced technologies in the diagnosis of retinal diseases.

3. Compare and critically analyze the surgery mentioned for Pterygium in Ayurveda with modern surgical techniques.

4. Describe the diagnostic techniques used in the diagnosis of Keratoconus. Enlist the latest trends in its management.

5. Enumerate Netraroga Pathya-Apthyas.

6. Discuss the uses of Lasers and cryotherapy in ophthalmology.

7. Explain the utility of Chathurvidha chikitsa in Pakshmakopa.

8. Describe the types, drugs, preparation and mode of action of Putapaka.

9. Explain the medical and surgical managements of Iridocyclitis

3.7 Internal assessment component

Not applicable

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3.8 Details of practical/clinical exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 **Details of viva: division of marks**

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.
2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.
3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

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4 INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

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(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

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(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Title pages

1. Title Page: No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.
2. Abstract: keep one page, include introduction to conclusion
3. Contents: Add sections and subsections, put page numbers, keep simple
4. Tables and Figures: List separately, clearly numbered with unique titles.
5. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
6. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected

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3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.
4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis

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8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %

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4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

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REGULATIONS 2016

SYLLABUS

for Courses affiliated to the

Kerala University of Health Sciences
Thrissur 680596

Ayurveda Dhanvantari – Shalakya
(M.S. (Ayurveda) - Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry)

(2016 admission onwards)

Course Code 265

MS Shalakya Tantra- Shiro NASA Karna Avum kantha Roga

(Prior to 2016)

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Dhanvantari – Shalakya (M.S. (Ayurveda) - Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry)-2016 admission onwards

MS Shalakya Tantra- Shiro Nasa Karna Avum kantha Roga (Prior to 2016)

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities and super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English/Sanskrit.

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, and laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars;

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study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Syllabus

Given under curriculum clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

(*The changes proposed by the CCIM [MSR 2016] shall be incorporated in this syllabus as and when the same is notified by the CCIM)*

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M.D./M.S.-AYURVEDA PRELIMINARY

PAPER-I

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks

Teaching Hours: 200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics
3. Preparation of research proposals in different disciplines for submission to funding

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agencies taking EMR-AYUSH scheme as a model.

4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.

   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

   Dravya-, Guna-, Karma-Parikshana Paddhati

   Aushadhi-yog Parikshana Paddhati

   Swastha, Atura Pariksha Paddhati

   Dashvidha Parikshya Bhava

   Tadvidya sambhasha, vadmarga and tantrayukti
6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda

   Fundamental research on concepts of

   Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-

   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external

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evidences about authors, concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following:Drug sources: plant, animal and mineral.

Methods of drug identification.

Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.

Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines

11. Introduction to latest Trends in Drug Discovery and Drug Development

-Brief information on the traditional drug discovery process

-Brief information on the latest trends in the Drug Discovery process throuemployment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

culture based assays, use of concepts of systems biology and networkphysiology

-Brief introduction to the process of Drug development.

12. Clinical research:

Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

Observational and Interventional studies

Descriptive & Analytical studies

Longitudinal & Cross sectional studies

Prospective & Retrospectives studies

Cohort studies

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Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)
Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

13. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives.
National Pharmacovigilance Programme for ASU drugs.

14. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology.
Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

15. Intellectual Property Rights- Different aspect and steps in patenting.
Information on Traditional Knowledge Digital Library (TKDL).

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PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.

   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:

   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:

   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance

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11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:

    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.
14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics
15. Familiarization with the use of Statistical software like SPSS/Graph Pad

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PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and toxicology

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6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values.
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

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II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15. Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

REFERENCE BOOKS:-

Pharmacognosy:

1. Aushotosh Kar "Pharmacognosy & Pharmacobiotechnology" New Age International Publisher. Latest Edition. New Delhi.
2. Drug Survey by Mayaram Uniyal
3. Fahn A (1981). Plant Anatomy 3rd Edition Pergamon Press, Oxford

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12. WHO guidelines on good agricultural and collection practices- (GACP) for medicinal plants (2003).World Health Organization- Geneva.
13. WHO monographs on selected medicinal plants (1999)—Vol. 1. 1.Plants, Medicinal 2.Herbs 3.Traditional medicine. ISBN 92 4 154517 8. WHO Geneva.

Pharmaceutical chemistry, quality control and drug standardization:

1. Ayurvedic Pharmacopoeia of India. Part I- volume 1 to 8 and Part II- volume 1to 3. Ministry of Health and Family Welfare. Controller of Publication. Govt of India. New Delhi.
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3. Galen Wood Ewing (1985). Instrumental Methods of Chemical Analysis. McGraw- Hill College ; Fifth edition
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5. HPTLC- Fingerprint atlas of Ayurvedic Single Plant Drugs mentioned in Ayurvedic

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Pharmacopoeia Vol- III and IV. CENTRAL COUNCIL FOR RESEARCH IN AYURVEDA AND SIDDHA. New Delhi.

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8. Laboratory Guide for- The Analysis of Ayurved and Siddha Formulations – CCRAS, New Delhi.
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11. Quality Control Methods for Medicinal Plant Material. Reprint (2002). WHO-Geneva.
12. Rangari V.D., Pharmacognosy & Phytochemistry, Vol I, II, Career Publication,
13. Sharma BK. Instrumental Methods of Chemical Analysis by, Goel Publishing House.
14. Srivastav VK and Shrivastav KK. Introduction to Chromatography (Theory and Practice)
15. Stahl E., Thin Layer Chromatography - A Laboratory Handbook, Springer Verlag, Berlin.
16. Sukhdev Swami Handa, Suman Preet Singh Khanuja, Gennaro Longo and Dev Dutt Rakesh (2008). Extraction Technologies for Medicinal and Aromatic Plants - INTERNATIONAL CENTRE FOR SCIENCE AND HIGH TECHNOLOGY- Trieste,

Biochemistry and Laboratory techniques:

1. Asokan P. (2003) Analytical Biochemistry, China publications,

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2. Campbell, P.N and A.D .Smith, Biochemistry Illustrated, 4th ed, Churchill Livingstone.
3. David Frifelder. W. H. Freeman. (1982). Physical Biochemistry by; 2 edition
4. David Sultan (2003).Text book of Radiology and Imaging, Vol-1, 7th Edition.
5. Deb, A.C., Fundamentals of Biochemistry, Books and Allied (P) Ltd, 2002.
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7. Kanai L.Mukherjee. Clinical Pathology:,Medical Laboratory Technology Vol. I.Tata McGrawHill 1996, New Delhi.
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9. Clinical Biochemistry -Sabitri Sanyal, Clinical Pathology, B.I.Churchill Livingstone (P) Ltd, New Delhi.2000.
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12. Text book of Radiology and Imaging, Vol-1, David Sultan, 7th Edition. 2003.

Research methodology:

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2. Ayurvediya Anusandhan Paddhati – P.V. Sharma
3. Altick and Fensternmaker. (2007).*The Art of Literary Research*. 4th ed. W. W. Norton. Castle, Gregory. *Blackwell Guide to Literary Theory*. Blackwells,
4. Bowling, A. (2002). Research Methods in Health (2nd ed). Buckingham: Open University Press.
5. Day R.A. How to write a scientific paper. Cambridge University Press.
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Drug research and development:

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2. Research guidelines for evaluating the safety and efficacy of herbal medicines. (1993). . WHO- (Regional Office for the Western Pacific – Manila) ISBN 92 9061
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12 Jaju B.P.: Pharmacological Practical Exercise Book, *Jaypee Brothers, New Delhi.*

13 Kulkarni S.K.: Hand Book of Experimental Pharmacology, *Vallabh Prakashan, New Delhi*

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8. http://www. zygogen.com.
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10. www.consort-statement.org
11. www.strobe-statement.org
12. www.icmr.nic.in

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M.S.-Ayurveda

Ayurveda Dhanvantari – Shalakya (M.S. (Ayurveda)- Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry)

Preliminary Examination

PAPER-II **Theory- 100 marks**

PART – A, 50 marks

1. Shalakya Tantra Parichaya and Itihas.

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2. Sharir and Study of Dosha, Dhatu, Mala and Srotas in context of Netra, Karna, Nasa, Shiro, Kantha and Mukha and Study of Marmas related to Shalakya Tantra.
3. Updated knowledge of Agropaharaniya in Shalakya - incorporating sterilization, Sangyaharana (Anaesthesia).
4. Basic pharmacology of common drugs required in diagnostic and therapeutic procedures used in shalakya tantra.
5. Vrana Siddhanta – Trividha Shopha, Shuddha – Ashuddha Vrana, Vrana Srava, Vrana Bandha, Vranitopasana in context to Shalakya Tantra.
6. Swasthavritta related to Shalakya.
7. Applied knowledge of various Kriyakalpas – Seka, Aschyotana, Pindi, Vidalaka, Tarpana, Putapaka and Anjana
8. Applied knowledge of various Urdvanga Kriyakalpas – Nasya, Karnapooran, Karnadhoopan, Kaval, Gandusha, Shirobasti and Shirodhara related to Shalakya Tantra.

PART – B, 50 marks

1. **Netra**
    a. Applied anatomy and physiology of eye, its adnexa and visual pathway.
    b. Clinical methods of eye examination, Application of various aids and techniques in the examination of eye – Refraction, Direct Ophthalmoscopy, Tonometry, and Slit Lamp examination with their interpretation.
    c. Classification of netra roga and applied aspects of samanya nidana, samprapti, sadyasadyata and samanya chikitsa of Netraroga along with Pathya-Apathya.
2. **Karna**
    a. Applied anatomy and Physiology of ear and related structures.
    b. Clinical methods and knowledge of common aural diagnostic equipments, procedures and their interpretation.
    c. Classification and applied aspects of samanya nidana and sadyasadyata of Karna roga.
3. **Nasa**
    a. Applied anatomy and physiology of nose and paranasal sinuses.
    b. Clinical methods and knowledge of common nasal diagnostic equipments, procedures and their interpretation.
    c. Classification and applied aspects of samanya nidana and sadyasadyata of Nasa roga.
4. **Kantha**
    a. Applied anatomy and physiology of throat.
    b. Clinical methods and knowledge of common pharyngeal and laryngeal diagnostic equipments, procedures and their interpretation.
    c. Classification and applied aspects of samanya nidana and sadyasadyata of Kantha roga.
5. **Shiras**

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a. Clinical methods and knowledge of common diagnostic equipments, procedures and their interpretation.
b. Classification and applied aspects of samanya nidana and sadyasadyata of Shiras and Kapaal roga.

6. Mukha

a. Applied orodental anatomy and physiology.
b. Clinical methods adopted in orodental practices.
c. Knowledge of advanced diagnostic techniques, equipments and tests of importance in orodental practices with their interpretations.
d. Classification and applied aspects of samanya nidana and sadyasadyata of Oshtha, Danta, Dantamula, Jihva, Talu and Sarvasar Mukha rogas.

PRACTICAL 100 marks

Contents:

1. Clinical posting in OPD/IPD/KriyakalpaKakshaand OT
2. Clinical case presentation (10 cases)
3. Case record (20 cases)
4. Hands on training in Kriyakalpa

Distribution of marks (practical):

1. Case Record - 20 Marks
2. Bed side examination
   a. Long case - 20 Marks
   b. Short case - 10 Marks
3. Kriyakalpa procedure - 15 Marks
4. Identification of specimens, radiograph and Instruments - 15 Marks
5. Viva-voce - 20 Marks

Reference Books

1. Charaka Samhita with commentaries
2. Sushruta Samhita with commentaries
3. Astanga hridaya and Astanga sangraha with commentaries
4. Madhava nidana with commentaries
5. Bhavaprakasha with commentaries
6. Sarangadhara Samhita with commentaries
7. Sahasrayoga
8. Relevent parts of Chakradatta, Bhela Samhita, Harita Samhita
9. Shalakya tantra Kriya kalpa vigyan - Prof.K.S.Dhiman

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10. Shalakya Tantra - Dr. R.C. Chaudhary
11. The Actions and uses of Indigenous Ophthalmic Drugs - Dr. N.Srikanth
12. Clinical Examination of Ophthalmic Case - Agarwal and Gupta
13. Alder's Physiology of the Eye and Clinical Applications - Cotlier, St. Louis
14. Disease of the Lens and Vitreous, Glaucoma and Hypotony - Duke Elder, St.Louis
15. A Text Book of Ophthalmology - Ahmed E
16. A Text book of clinical ophthalmology - Dhanda
17. Modern Ophthalmology - Dutta, L.C. Jaypee Brothers
18. Manual of the Diseases of the Eye -May,C.and Worth,C. Bailliere Tindal and Castell
19. Ophthalmology – Principles and Concepts - Newell, F.W., C.V. Mosby Co., St. Louis.
20. Ocular Differential Diagnosis -Roy Fedrick Hamptn Lea and Febiger
21. Clinical Ophthalmology- Smith, R.Verghese Company
22. Abrahm Manual of Refraction -Duke and Elder
23. Hand Book of ophthalmology - B.M. Chaterjee
24. Text Book of ophthalmology - Dr. Nithin Nema, Dr.H.V.Nema
25. Clinical ophthalmology - Kanski
26. Parsons Diseases of Eye
27. Stallard's Eye Surgery
28. Modern books related to ENT disorder
29. Diseases of Nose Throat and Ear - Bhargav Shah
30. Diseases of Nose Throat and Ear, Head and Neck- EB Edr.
31. A Textbook of otorhinololaryngology - Scott Browns editions.
32. Text book of Ear Nose Throat diseases – Dhingra
33. Textbook on ENT – Mohd. Maqbool
34. Logan Turner's book on ENT
35. Ballengers text book of ENT

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36. Kumin's text book of ENT
37. Rob Smith's book of ENT surgery
38. Paprella's book of ENT
39. Hazarika's text book on ENT
40. Books on examination of ENT
41. Audiology Anirwan Biswas
42. Kurt's Audiology
43. Books on Speech therapy
44. Nimi Tantra - Ramanath Dwivedi
45. Dental Anatomy Histology - Dr. S.I. Bhalajhi
46. Essentials of Preventive and Community Dentistry -Dr. Soben Peter
47. Complete Denture Prosthodontics - Dr. J.J. Manappallil
48. Orthodontics the Art and Science - Dr. S.I. Bhalajhi
49. Text book of Pediatric Dentistry - Dr. S.G. Damle
50. Text book of Oral and Maxillofacial surgery -Dr. Vinod Kapoor
51. Clinical Periodontology - Dr. B.R.R. Varma
52. Anatomy for Dental Students - Inderveer Singh
53. Clinical Periodontology - Carranza , Newman
54. Operative Dentistry - M A Marzouk
55. Oral and maxilofacial surgery secrets - A.Omar Abubaker
56. Killey and Kay's Outline of Oral Surgery - Girdon R Seward
57. Clinical Dentistry - Ivor G. Chestnut , John Gibson
58. Synopsis of Oral Pathology - S N Bhaskar
59. Oral Pathology - Stone

Final Year Shalakya Syllabus

(Prior to 2016 admission)

Theory - Four papers – 100 Marks each

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Practical and Viva-voce- 100 Marks

19.AYURVEDA DHANWANTRI- SALAKYA TANTRA-

SHIRO- NASA- KARNA EVUM KANTHA ROGA

PAPER – I

Shiro- Nasa- Karna - Kantha Roga Vigyan Maulik Siddhanta and Vangmaya

1. Detailed study of Shalakyatantra from Bruhat trayee, Laghutrayee, Kashyapa samhita, Yoga ratnakara, Chakradutta, Bhela samhita, Harita samhita and other granthas.
2. Comparative and critical study of rogas explained by various granthas.
3. Syntactical derivation, definition and importance of the word "Shalakya". Sequential development and history of science of ear, nose, throat and Shiras disorders. Establishment of "Superiority of shiras' among the organs. Determination and importance of the verse **'Nasa Hi Shiraso Dvaram'.** Syntactical derivation and the synonyms of the words Karna, Nasa, Kantha, Shiras etc.
4. Descriptive knowledge of the anatomy and Physiology of ear, nose, throat and Shiras as per ancient and modern science.
5. Examination of the ear, nose, kantha and shira as per Ayurveda and modern science.
6. Common etiology of ear, nose, throat and shiras disorders, their pathogenesis, prodormal symptoms, classification, clinical features and general treatment.
7. Importance of shamana and sodhana therapy in ear, nose, throat and shira disorders with general introduction to local therapeutic procedures of ear, nose, throat and shira e.g. kabala, gandusha etc.
8. Detailed applied knowledge of recent advanced diagnostic and therapeutic techniques and equipments (Yantra and Shastra) used for ENT and Shira disorders.
9. General knowledge of 'vrana bandhana' (bandaging of wounds) and applied bandage in ear etc.

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10. Chronological development of ENT from Vedic period.
11. Study of essential modern drugs, anaesethic agents of diagnostic and surgical importance.

PAPER – II Ayurvediya Shiro – Nasa - Karna - Kantha Roga Vigyan

1. Examination of Karna Nasa Kantha and shiras.
2. Karna rogas samkhya samprapti, descriptive knowledge of etiology, pathogenesis, prodromal symptoms, classification, clinical features, Upasaya- Anupasaya (prognostic measures) sadhyasadhyatwa and, complications of ear disorders described in the classics of Ayurveda. Detail description along with practical orientation of their management.
3. Nasa rogas samkhya samprapti, descriptive knowledge, etiology, pathogenesis, prodomal symptoms, classification, clinical features, Upasaya-Anupsaya (prognostic measures), sadhyasadhyatwa and complications of nasal diseases described in the classics of Ayurved. Detail description along with practical orientation of their treatment.
4. Kantha rogas samkhyasamprapti, descriptive knowledge about etiology, pathogenesis, prodromal symptoms, classification, clinical features, Upasaya-Anupsaya (prognostic measures), sadhyasadhyatwa and complications of kantha diseases described in the classics of Ayurved. Detail description along with practical knowledge of treatment.
5. Shira and Kapala (cranial vault) disorders samkhya samprapti, descriptive knowledge, etiology, pathogenesis, prodromal symptoms, classification, clinical features, Upasaya- Anupsaya (prognostic measures) and complications of Shira and kapala diseases described in the classics of Ayurved. Detail description along with practical knowledge of treatment.

PAPER – III

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Adhunika Shiro- Nasa- Karna - Kantha Roga vigyan

1. Descriptive knowledge of instruments and recent equipments available for diagnosis of ear – nose – throat – head disorders along with their practical application.
2. Descriptive knowledge of etiology, p a t h o g e n e s i s , clinical features, differential diagnosis, classification along with complications of different ear – nose- throat and head disorders. Detailed knowledge of the treatment (including conservative and surgical) of the above mentioned disorders.
3. Imaging in ENT and Head disorders, detailed knowledge of LASERS, radiotherapy, chemotherapy and other recently advanced treatment modalities like speech therapy, cochlear implant, rehabilitation of the deaf and mute, etc. related to ear – nose – throat – and head disorders.
4. Management of emergencies in ENT and head disorders.

PAPER – IV

Shiro- Nasa- Karna -Kantha Roga Vigyan Shalya Chikitsa

1. Knowledge of agropaaharniya and trividha karma i.e pre operative, operative and post operative measures. Knowledge of eight types of surgical procedures (Astavidha Sasthra Karma) and post operative care of the patient with respect to ENT disorders (Vranitopasaniya).
2. Practical knowledge of updated surgical procedures in ear – like constructive surgery of external and middle ear,excision of pre auricular sinus, Tympanoplasty, Mastoidectomy, Stapedectomy, Endolymphatic sac surgery, Facial nerve decompression surgery, Cochlear implant, etc with their complications and their management.
3. Nose – Septo-rhinoplasty, SMR, Functional Endoscopic sinus surgery,Caldwell luc surgery, Antral puncture,Antral lavage,Turbinectomy,Polypectomy, Various surgical procedures done for malignancy of Nose and paranasal sinuses,Young's surgery,etc

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4. Throat - Adenoidectomy, Tonsillectomy, Surgical procedures for pharyngeal abscesses, cauterization of pharyngeal wall granulations, tracheostomy, vocal cord surgery, surgery of vocal cord paralysis, management of laryngeal trauma, laryngectomy,etc.
5. General introduction of four treatment procedures like Bheshaja– Kshara – Agni– Shastra and Raktavsechana with their applied aspects in ear nose throat and shiro disorders. Chaturvidha upakrama in raktasandhana vidhi related to ear, nose, throat and head disorders. Haemostatic management in ENT.
6. Removal of foreign bodies in the ear nose throat and shira as per Ayurveda and modern science.
7. Karna-Sandhana, Nasa-Sandhana, fundamental and applied aspects of Ayurveda.

Methods of Training

- Intensive integrative training would be imparted to scholars in understanding the classical Ayurvedic aspects with an emphasis of critical comparative interpretation.
- Mandatory participation of scholars in seminars, group discussions, clinical demonstrations, journal review meetings, case study, continuing education activities and research clinical projects.
- During the first year course the emphasis would be laid to impart adequate knowledge on fundamental aspects and their applications, with a focus on latest diagnostic tools, instrumentations and laboratory procedures. Practical orientation and hospital based clinical training is an integral part of the curriculum all through.
- In the second year, training would stress upon extending the knowledge on techniques and imparting skill for surgical performaqnce, ENT procedure based therapies, surgical/para surgical procedures **so that the scholar is able to perform ENT surgical procedures independently**.
- In the third year the scholar should concentrate on the clinical work and research work beased on the dissertation.
- The participation of the scholars in all the aspects of educational process is

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mandatory.

- Hospital postings – The student has to work for 6 terms of resident posting is compulsory out of which first 2 postings will be as a junior resident and the next four postings will be as a senior resident.
- The student should also develop in the academic work of the department.

Pattern of Practical Examination:

1. Case Record(25) -10 Marks
2. Bed side examination
   Long Case -20 Marks
   Short Case -10 Marks
3. Identification of specimen / Instrument / Radiograph -10 Marks
4. Thesis Presentation -25 Marks
5. Viva Voce -25 Marks

Reference Books

1. Sushruta Samhita
2. Charaka Samhita
3. Ashtanga Hridaya
4. Ashtanga Samgraha
5. Laghutrayi
6. Shalaky tantra – Dr. R.C. Choudhary
7. Shalakya Tantra - KRIYAKALP VIGYAN – Prof. K.S.Dhiman
8. Modern books related to ENT disorder
9. Diseases of Nose Throat and Ear - Bhargav Shah
10. Diseases of Nose Throat and Ear, Head and Neck- EB Edr.
11. A Textbook of otorhinololaryngology - Scott Browns editions.
12. Text book of Ear Nose Throat diseases – Dhingra
13. Textbook on ENT – Mohd. Maqbool
14. Logan Turner's book on ENT

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15. Ballengers text book of ENT
16. Kumin's text book of ENT
17. Rob Smith's book of ENT surgery
18. Paprella's book of ENT
19. Hazarika's text book on ENT
20. Books on examination of ENT
21. Audiology Anirwan Biswas
22. Kurt's Audiology
23. Books on Speech therapy

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2.11 No: of hours per subject

Given under Clause No. 2.10

2.12 Practical training

Given under Clause No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: Guide/Co-Guide/ Change of Guide

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.

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3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after submission of dissertation to complete three years.
9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.

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14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

Given under Clause No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause No. 2.10

2.19 Reference books

Given under clause No. 2.10

2.20 Journals

List of Journals

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1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor- AYU, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, Gujarat Ayurved University, www.ayujournal.org/

Chief Editor Prof.P.K.Prajapati Director, IPGT & RA, Gujarat Ayurved University, Jamnagar

3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research inAyurvedaandSiddha*ccras.nic.in/publication/JournalofResearchinAyurvedaSiddha.htm*

Chief Editor – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.

4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/
8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x

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13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HOD.

3 EXAMINATIONS

3.1 Eligibility to appear for examinations [including Supplementary]

A. Preliminary examination:

A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.

B. Final examination:

For appearing final year examination 80 % attendance in each theory and pratical subjects in 2 nd & 3 rd years separately is required

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3.2 Schedule of Regular/Supplementary exams

The University shall conduct not more than two examinations in a year.

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination shall be conducted on the next working day.

SCHEDULE OF EXAMINATIONS

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a. The preliminary examination shall be conducted at the end of one academic year after commencement of course;
b. The final examination shall be conducted on completion of three academic years after commencement of PG course;
c. Examination shall ordinarily be held in the month of June or July and November or December every year;
d. For being declared successful in the examination, student shall have to pass all the subjects separately.
e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.
f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;
g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;
h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.
2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.
3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies.
The pattern is long essay for 20 marks -one question
Short essay 10 marks - Eight questions
Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams [include number of papers, Duration, Type of questions & number of questions and marks

Given under clause No. 2.10 & 2.25

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3.6 Model question paper for each subject with question paper pattern

Kerala University of Health Sciences

First Year M.D Ayurveda Degree examination

[Time: 3 Hours] [Max. Marks: 100]

RESEARCH METHODOLOGY AND MEDICAL STATISTICS

PAPER I

ESSAY **20 Marks**

1. Develop a clinical research protocol to estimate the prevalence of smoking among High School going boys in Kerala.

Short Essay **8 x 10 Marks**

2. Write down the steps involved in testing of a hypothesis
3. Discuss the applicability of *Anumana Pramana* in experimental research
4. What is a normal distribution? Explain the peculiarities of a normal distribution
5. Design a Randomized Controlled Trial to find out the effect of Dadimadi Ghrita over Iron tablets in Anaemia in pregnant women.
6. Elaborate case control studies. Explain the peculiarities of a control in the case control study
7. What is literary research? Elaborate its significance in Ayurvedic research
8. What is Manuscriptology? What is its role in the preservation of traditional knowledge?
9. Explain parametric tests

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MODEL QUESTION PAPER

Ayurveda Dhanvantari (M.S. (Ayurveda)

Diseases of Eye, Ear, Nose, Throat Head, Neck, Oral and Dentistry)

Preliminary Examination

Paper II Shalakya Moulika Sidhantha

Time: 03 hours ANSWER ALL QUESTIONS Marks: 100

Essay (1×20 = 20 marks)

1. Enumerate and describe Urdwajatrugata Marmas (उर्द्धजत्रुगत मर्म) and their relevance as per modern anatomy. Explain the uses of Marmavijnana in the therapeutic aspects of Shalakya Roga chikitsa.

Short essays (8×10 = 80 marks)

2. Contributions of Laghutrayee in Shalakyatantra.

3. Explain the importance of Vranavijnana (व्रण विज्ञान) for understanding the pathology of Karna roga and Mukharoga.

4. Explain the Clinical anatomy of teeth. Detail the procedure of Tooth extraction mentioned in Ayurveda.

5. Detail the importance of Vasthi in the management of Shalakyarogas.

6. Detail the patha-Apathya of Karna roga. Detail its importance in the present era.

7. Enumerate Netra kriyakalps. How it can be used in the prevention of Netrarogas.

8. Explain the etiology and management of Nasagatharakthapittha (नासागतरक्तपित्त) (Epistaxis). Describe the emergency management described in Ayurveda for arresting the bleeding.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

(Shalakya - Shiro- Nasa- Karna evum Kantha roga)

Paper 1 - Shiro- Nasa- Karna – Kantha Roga Vigyan Maulik Siddhanta and Vangmaya

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. What are the applications of Vranasidhhantha in the diagnosis and management of Nasa and Karnarogas? Explain with examples and Yogas.

Short essays **(8×10 = 80 marks)**

2. Explain “Nasa hi Shirasodwaram” with context. Establish the statement in help of modern science.

3. Explain the Physiology of olfaction in Ayurvedic and modern point of view.

4. Explain the importance of Dhoopana in Karnarogas with suitable examples.

5. Discuss the chronological development of ENT from Vedic period.

6. Describe the diagnostic and therapeutic aspects of Laryngoscopy.

7. Hair physiology and its disorders

8. Explain the general and local anesthesia in ENT

9. Contributions of Chakradatta in the management of Shiroroga.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

(Shalakya - Shiro- Nasa- Karna evum Kantha roga)

Paper II - Ayurvediya Shiro – Nasa – Karna – Kantha Roga Vigyan

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Enumerate Shira and Kapala rogas. Explain Ardhavabhedaka in detail with etiological factors. Detail the general and specific management with yogas.

Short essays **(8×10 = 80 marks)**

2. Describe Dushtaprathishyaya with prognoses. What are the complications mentioned by Acharya Susrutha? Substantiate with modern view.

3. "Payonupanam sevetha ghritam thailamadhapi va" .explain the context and logic of the statement. Detail the management of the condition.

4. In which Karnaroga both Prathishyaya chikitsa and Vathavyadhi chikitsa is indicated by Susrutha? Explain the Dosha concept of the disease and detail the treatment.

5. Differentiate Tundikeri and Rohini. Explain the surgical and conservative treatments available in classics.

6. What are the different types of Sopha manifesting in the Bahyakarna. Discuss the line of management.

7. Aetiopathogenesis of Sooryavartha and management.

8. Pathyapathyas in Kantaroga.

9. Differentiuate Karnapaka and Poothikarna with treatment.

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

(Shalakya - Shiro- Nasa- Karna evum Kantha roga)

Paper III - Adhunika Shiro- Nasa- Karna – KanthaRogavigyan

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Classify the hearing loss. Detail the aetiology, pathology, clinical features and management of deafness. What are the diagnostic tools available for its diagnosis? Detail with latent advances.

Short essays **(8×10 = 80 marks)**

2. Classify the aetiological factors of hoarseness of voice. Explain the available treatments with importance of Speech therapy.

3. Differentiate Atrophic rhinitis and Rhinitis sicca. Detail the conservative and surgical managements.

4. Explain the conservative and surgical managements in Tonsillitis and Adenoids.

5. Medical emergencies in ENT

6. Detail the diagnostic tools in Thyroid diseases? Explain the importance of RAIU.

7. Detail the aetiopathogenesis of CSOM. Discuss the conservative and surgical managements

8. FESS

9. Lasers and chemotherapy in ENT

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MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

(Shalakya - Shiro- Nasa- Karna evum Kantha roga)

Paper IV - Shiro- Nasa- Karna –Kantha Roga Vigyan Shalya Chikitsa

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Explain the agropaaharniya and pre operative, operative and post operative measures of Nasa sandhana. Detail the Septo-rhinoplasty and SMR operations.

Short essays **(8×10 = 80 marks)**

2. Explain the aetiology, pathology and clinical features of retropharyngeal, parapharyngeal and Peritonsillar abscesses. Discuss the surgical procedures of pharyngeal abscesses.

3. Discuss the importance of Bheshaj– Kshar – Agni– Shastra and Raktavsechana with their applied aspects in ear nose throat and Shiro disorders.

4. Detail the removal of foreign bodies in the ear nose throat and Shira as per Ayurveda and modern science.

5. Explain Tracheostomy procedure with diagnostic and therapeutic aspects.

6. Describe the various surgical procedures available in the management of Nasal polyps.

7. Explain the course and distribution of Facial nerve. What is Facial nerve decompression surgery? Explain the indications and procedure.

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8. Cochlear implant

9. Explain the various surgeries available in the management of Para nasal Sinus diseases.

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3.7 Internal assessment component

Not applicable

3.8 Details of practical/clinical practicum exams to include Duration Marks Types of cases/ questions

Given under clause no.2.10 & 2.25

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination.

3.10 Details of viva: division of marks

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

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1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.

2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.

3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring : Log Book , Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution

Dissertation

(1) Central Scientific Advisory Post Graduate Committee appointed by Central Council of Indian Medicine shall suggest the areas of Research and topics to be focused every academic year to make campaigning of evidence based Ayurveda to the need of global standards and achieve publications and the same shall be followed by University Committee while approving the Dissertation title.

(2) The title of the dissertation along with the synopsis, with approval of the Ethics Committee constituted by the institute as per regulations of concerned recognised University, shall be submitted to the University within a period of six months from the date of admission to the post-graduate course.

(3) If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation (2), his terms for final post-graduate course shall be extended for six months or more in accordance with the time of submission of the synopsis to the University.

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(4) The synopsis of the proposed scheme of work shall indicate the expertise and action plan of work of the student relating to the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide (if any).The University shall approve the synopsis not later than three months after submission of the synopsis.

(5) A Board of Research Studies shall be constituted by the University for approving the title.

(6) The University shall display the approved synopsis of dissertation on their website.

(7) The subject of every dissertation shall be research oriented, practical oriented, innovative and helpful in the development of Ayurveda system and the subject of the dissertation shall have relation with the subject matter of the specialty.

(8) Once the title for dissertation is approved by the Board of Research Studies of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.

(9) No student shall be allowed to submit the dissertation before six months of completion of course and the student shall continue his regular study in the institution after submission of dissertation to complete three years.

(10) The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the guide or supervisor approved by the University.

(11) The dissertation shall consist of critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study, summary, conclusion, and references cited in the dissertation shall be suitable for publication.

(12) The dissertation shall consist of not less than forty thousand words.

(13) The dissertation shall contain, at the end, a summary of not more than one thousand and five hundred words and the conclusion not exceeding one thousand words.

(14) The guide or supervisor shall be a person of status of a Professor or Reader or Associate Professor.

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(15) Lecturer or Assistant Professor having five years University approved teaching experience in the subject concerned shall eligible for guide or supervisor.

(16) Five copies of the bound dissertation along with a certificate from the supervisor or guide shall reach the office of the Registrar of the University four months before the final examination.

(17) The dissertation shall be assessed by two external examiners and two internal examiners appointed by the University.

(18) The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third external examiner approved by the University concerned.

(19) If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student shall resubmit the dissertation after making necessary improvement in the light of examiners' report to the University within a further period of six months.

(20) The student shall be permitted to appear in the final examination of post-graduate degree course only after approval of the dissertation by the examiners.

(21) Inter-disciplinary research may be done by co-opting the guide or supervisor from the concerned specialty.

(22) If a para-clinical or pre-clinical subject student takes a thesis topic involving clinical trials then he/she shall work under co-guide of a clinical teacher of the speciality concerned for preparing the thesis

Guidelines for Preparation of PG Dissertation

Tile pages

Title Page : No decorations, Avoid Dr., pictures, boxes, tables, boarders etc.

1. Abstract: keep one page, include introduction to conclusion
2. Contents: Add sections and subsections, put page numbers, keep simple
3. Tables and Figures : List separately, clearly numbered with unique titles.

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4. Abbreviations: List main abbreviations or acronyms. Avoid common like ESR
5. Acknowledgement: Fairly brief, no history telling, 1 – 2 pages only.

Introduction

1. Explain the origin of the idea for the research.
2. Why this particular topic being selected
3. What is the significance
4. Previous studies on the same topic
5. Mention lacunae in current knowledge.
6. Hypothesis, if any
7. State Aims and Objectives

   a) State in clear, precise and logical manner

   b) Begin with a verb

   c) State in a neutral manner

   d) Avoid prejudgment

Review of Literature

1. Aims to establish the Academic and Research areas of the topic.
2. Collect a reasonable coverage of the subject by summarizing the texts, articles, journals etc.
3. Review the literature connected to all key concepts.
4. Detailed analysis of the text book is not needed.
5. Mere copy of text books and commentaries should be avoided
6. Collect largely the reports of research relevant to the subject matter
7. Present one paragraph of the study with full reference.

Methodology

1. Settings
2. Type of study (Study design)
3. Sampling – Population, sample, sampling techniques and size.

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4. Details of materials.
5. Details of intervention
6. Process of data collection – explain pilot study
7. Details of data analysis
8. Strength and weakness of the methodology
9. Ethical considerations

Observations & Results

1. Logical organization of observations in readily identifiable sections.
2. Logical organization of effect of intervention
3. Presentation of statistical analysis
4. Appropriate use of charts, tables, graphs, figures etc.

Discussion

1. Comparison of baseline data in different groups.
2. Justification and reasoning of observations with prevailing academic and research data.
3. Justification and reasoning of outcome with original thoughts.
4. Interpretation of implications of outcome
5. Statement of limitations of interpretations
6. Mention of unanswered questions.
7. Mention of new questions raised

Summery and Conclusion

1. State original contributions
2. Limitations of the study
3. Recommendations for further study.

Annexure

1. Required annexure and appendices

Miscellaneous

Length of thesis

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1. Usually 150 – 250 pages. (CCIM -not less than 40,000 words)
2. Introduction 5%
3. Review of literature 25 %
4. Methodology 15%
5. Observation and results 25%
6. Discussion 20%
7. Summery & Conclusion 5%
8. Others 5%

Lay out

1. Font – Arial / Times New Roman
2. Size – 11/ 12
3. Heading size 14 / 16 – Bold
4. Avoid underlines
5. Line Spacing – Double or 1.5
6. Page numbering – Arabic
7. Title pages – Roman
8. Begin new chapter in new page only
9. Use only single side of the page
10. Main text – No decorations, no borders, no boxes. Be simple and straight forward.
11. Avoid repetition in data presentations. Select the most convincing way of presentation.
12. Avoid first person
13. Use third person or passive voice.
14. Italicizing – Sanskrit terms, title of books, journals and other academic works.
15. Capitalization – Name of academic organizations eg. KUHS.
16. Use the term Dissertation for Masters and Thesis for Doctoral research.

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REGULATIONS 2016

Syllabus

for Courses affiliated to the

Kerala University of Health Sciences

Thrissur 680596

Ayurveda Dhanvantari – Prasuti evam Stri Roga
(M.S. (Ayurveda)- Obstetrics and Gynecology)

Course Code 266

(2016-17 Academic year onwards)

2016

2. COURSE CONTENT

2.1 Title of course

Ayurveda Dhanwantri (M.S. – Ayurveda) – Shalya Tantra Samanya

2.2 Objectives of course

The aims of the post -graduate degree course shall be to provide orientation of specialities ans super-specialities of Ayurveda and to produce experts and specialists who can be competent and efficient teachers, physicians, pharmaceutical experts, researchers and profound scholars in various fields of specialization of Ayurveda.

2.3 Medium of instruction

The medium of instruction for the course is English

2.4 Course outline

a. The student shall have to undergo a study for a period of three years after the admission

b. The student shall have to attend at least 80% of total lectures, practical and clinical tutorials or classes to become eligible for appearing for the examination.

c. The students shall have to attend the hospital and other duties as may be assigned to them during the course of study

d. The students of clinical subject shall have to do Resident duties in their respective departments and student of non clinical subject shall have duties in their respective departments like pharmacy, herbal garden, laboratory during entire period.

e. The students shall have to attend special Lectures, demonstrations, seminars, study tours and such other activities as may be arranged by the teaching departments.

2.5 Duration

3 Years

2.6 Syllabus

Given under curriculum clause no.2.10

The concept of health care counselling shall be incorporated in all relevant areas.

2.7 Total number of hours

Given under curriculum clause no.2.10

2.8 Branches if any with definition

Not applicable

2.9 Teaching learning methods:

Lecture classes, complation works, seminars, paper presentations, group discussions, assignments, clinical / lab training etc.

2.10 Content of each subject in each year

M.D./M.S.-AYURVEDA PRELIMINARY
PAPER-I
RESEARCH METHODOLOGY AND MEDICAL STATISTICS

Theory-100 Marks
Teaching Hours: 200 Hours

PART-A **60 Marks**

RESEARCH METHODOLOGY **Teaching Hours: 120**

1. Introduction to Research
   a. Definition of the term research
   b. Definition of the term anusandhan
   c. Need of research in the field of Ayurveda
2. General guidelines and steps in the research process
   a. Selection of the research problem
   b. Literature review: different methods (including computer database) with their advantages and limitations
   c. Defining research problem and formulation of hypothesis
   d. Defining general and specific objectives
   e. Research design: observational and interventional, descriptive and analytical, preclinical and clinical, qualitative and quantitative
   f. Sample design
   g. Collection of the data
   h. Analysis of data.
   i. Generalization and interpretation, evaluation and assessment of hypothesis.
   j. Ethical aspects related to human and animal experimentation.
   k. Information about Institutional Ethics Committee (IEC) and Animal Ethics Committee (AEC) and their functions. Procedure to obtain clearance from respective committees, including filling up of the consent forms and information sheets and publication ethics
3. Preparation of research proposals in different disciplines for submission to funding agencies taking EMR-AYUSH scheme as a model.
4. Scientific writing and publication skills.
   a. Familiarization with publication guidelines- Journal specific and CONSORT guidelines.
   b. Different types of referencing and bibliography.
   c. Thesis/Dissertation: contents and structure
   d. Research articles structuring: Introduction, Methods, Results and Discussions (IMRAD)
5. Classical Methods of Research.
   Concept of Pratyakshadi Pramana Pariksha, their types and application for Research in Ayurveda.

Dravya-, Guna-, Karma-Parikshana Paddhati
Aushadhi-yog Parikshana Paddhati

Swastha, Atura Pariksha Paddhati

Dashvidha Parikshya Bhava

Tadvidya sambhasha, vadmarga and tantrayukti

6. Comparison between methods of research in Ayurveda (Pratigya, Hetu, Udaharana, Upanaya, Nigaman) and contemporary methods in health sciences.
7. Different fields of Research in Ayurveda
   Fundamental research on concepts of Ayurveda
   a. Panchamahabhuta and tridosha.
   b. Concepts of rasa, guna, virya, vipak, prabhav and karma
   c. Concept of prakriti-saradi bhava, ojas, srotas, agni, aam and koshtha.
8. Literary Research-
   Introduction to manuscriptology: Definition and scope. Collection, conservation, cataloguing.

   Data mining techniques, searching methods for new literature; search of new concepts in the available literature. Methods for searching internal and external evidences about authors,

   concepts and development of particular body of knowledge.

9. Drug Research (Laboratory-based)- Basic knowledge of the following: Drug sources: plant, animal and mineral. Methods of drug identification.
   Quality control and standardization aspects: Basic knowledge of Pharmacopoeial standards and parameters as set by Ayurvedic Pharmacopoeia of India.

   Information on WHO guidelines for standardization of herbal preparations. Good Manufacturing Practices (GMP) and Good Laboratory Practices (GLP).

10. Safety aspects: Protocols for assessing acute, sub-acute and chronic toxicity studies.
    Familiarization with AYUSH guidelines (Rule 170), CDCSO and OECD guidelines.

11. Introduction to latest Trends in Drug Discovery and Drug Development
    -Brief information on the traditional drug discovery process

    -Brief information on the latest trends in the Drug Discovery process through employment of rational approach techniques; anti-sense approach, use of micro and macro-arrays, cell

    culture based assays, use of concepts of systems biology and networkphysiology

    -Brief introduction to the process of Drug development.

12. Clinical research:
    Introduction to Clinical Research Methodology identifying the priority areas of Ayurveda Basic knowledge of the following:-

    Observational and Interventional studies

    Descriptive & Analytical studies Longitudinal & Cross
    sectional studies Prospective & Retrospectives studies
    Cohort studies

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Randomized Controlled Trials (RCT) & their types

Single-case design, case control studies, ethnographic studies, black box design, cross-over design, factorial design.

Errors and bias in research.

New concepts in clinical trial- Adaptive clinical trials/ Good clinical practices (GCP)
Phases of Clinical studies: 0,1,2,3, and 4.

Survey studies -

Methodology, types, utility and analysis of Qualitative Research methods. Concepts of in- depth interview and Focus Group Discussion.

11. Pharmacovigilance for ASU drugs. Need, scope and aims & objectives.
National Pharmacovigilance Programme for ASU drugs.

12. Introduction to bioinformatics, scope of bioinformatics, role of computers in biology.
Introduction to Data base- Pub med, Medlar and Scopus. Accession of databases.

13. Intellectual Property Rights- Different aspect and steps in patenting.
Information on Traditional Knowledge Digital Library (TKDL).

PART–B **40 marks**

MEDICAL STATISTICS **Teaching hours: 80**

1. Definition of Statistics : Concepts, relevance and general applications of Biostatistics in Ayurveda
2. Collection, classification, presentation, analysis and interpretation of data (Definition, utility and methods)
3. Scales of Measurements- nominal, ordinal, interval and ratio scales.
   Types of variables – Continuous, discrete, dependent and independent variables. Type of series – Simple, Continuous and Discrete
4. Measures of Central tendency – Mean, Median and Mode.
5. Variability: Types and measures of variability – Range, Quartile deviation, Percentile, Mean deviation and Standard deviation
6. Probability: Definitions, types and laws of probability,
7. Normal distribution: Concept and Properties, Sampling distribution, Standard Error, Confidence Interval and its application in interpretation of results and normal probability curve.
8. Fundamentals of testing of hypotheses:
   Null and alternate hypotheses, type I and type 2 errors.

   Tests of significance: Parametric and Non-Parametric tests, level of significance and power of the test, 'P' value and its interpretation, statistical significance and clinical significance
9. Univariate analysis of categorical data:
   Confidence interval of incidence and prevalence, Odds ratio, relative risk and Risk difference, and their confidence intervals
10. Parametric tests: 'Z' test, Student's 't' test: paired and unpaired, 'F' test, Analysis of variance (ANOVA) test, repeated measures analysis of variance
11. Non parametric methods: Chi-square test, Fisher's exact test, McNamara's test, Wilcoxon test, Mann-Whitney U test, Kruskall – Wallis with relevant post hoc tests (Dunn)
12. Correlation and regression analysis:
    Concept, properties, computation and applications of correlation, Simple linear correlation, Karl Pearson's correlation co-efficient, Spearman's rank correlation.

    Regression- simple and multiple
13. Sampling and Sample size computation for Ayurvedic research: Population and sample. Advantages of sampling, Random (Probability) and non

random (Non-probability) sampling. Merits of random sampling. Random sampling methods- simple random, stratified, systematic, cluster and multiphase sampling. Concept, logic and requirement of sample size computation, computation of sample size for comparing two means, two proportions, estimating mean and proportions.

14. Vital statistics and Demography: computation and applications - Rate, Ratio, Proportion, Mortality and fertility rates, Attack rate and hospital-related statistics

15. Familiarization with the use of Statistical software like SPSS/Graph Pad



PRACTICAL

100 Marks

Teaching Hours 120

I. RESEARCH METHODOLOGY

	PRACTICAL NAME
1	Pharmaceutical Chemistry Familiarization and demonstration of common lab instruments for carrying out analysis as per API
2	Awareness of Chromatographic Techniques Demonstration or Video clips of following: • Thin-layer chromatography (TLC). • Column chromatography (CC). • Flash chromatography (FC) • High-performance thin-layer chromatography (HPTLC) • High Performance (Pressure) Liquid Chromatography (HPLC) • Gas Chromatography (GC, GLC)
4	Pharmacognosy Familiarization and Demonstration of different techniques related to:- Drug administration techniques- oral and parenteral. Blood collection by orbital plexuses puncturing. Techniques of anesthesia and euthanasia. Information about different types of laboratory animals used in experimental research Drug identification as per API, including organoleptic evaluation
5	Pharmacology and toxicology Familiarization and demonstration of techniques related to pharmacology and
6	Biochemistry (Clinical) Familiarization and demonstration of techniques related to basic instruments used in a clinical biochemistry laboratory – semi and fully automated clinical analyzers, electrolyte analyzer, ELISA- techniques, nephelometry. Demonstration of blood sugar estimation, lipid profiles, kidney function test, liver function test. HbA1, cystatin and micro albumin estimation by nephelometry or other suitable techniques. Interpretation of the results obtained in the light of the data on normal values
7	Clinical Pathology Familiarization and demonstration of techniques related to basic and advanced instruments used in a basic clinical pathology lab. Auto cell counter, urine analyzer, ESR, microscopic examination of urine.
8	Imaging Sciences Familiarization and demonstration of techniques related to the imaging techniques. Video film demonstration of CT-Scan, MRI-scan and PET-scan.
9	Clinical protocol development

II. MEDICAL STATISTICS

Practical hours: 20

Statistical exercise of examples from Topic number 4, 5, 8-12, 14, 15.
Records to be prepared.

Distribution of marks (practical):

1. Instrumental spotting test -20 marks
2. Clinical protocol writing exercise on a given problem -20 marks
3. Records:
4. Research methodology -10 Mark
5. Medical statistics -10 marks
6. Viva- Voce -40 Marks

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6. Dwivedi S. N., Sundaram K. R and V. Sreenivas (2009). Medical Statistics - Principles & Methods-BI Publications Pvt. Ltd., New Delhi –1.
7. Gupta S.P. - Fundamentals of statistics, Sultan Chand. Delhi.
8. Indrayan. (2008). Basic Methods of Medical Research. AITBS Publishers- India
9. Mahajan B K, Methods in Bio statistics for medical students, 5th Ed. New Delhi, Jaypee Brothers Medical Publishers
10. Mehdi, B and Prakash A. (2010). Biostatistics in Pharmacology. Practical Manual in experimental and clinical pharmacology. 1st Edition. New-Delhi: Jaypee brothers
    Medical Publishers
11. Rao, NSN and Murthy, NS. (2008) 2nd Edition. Applied statistics in health sciences.
    Jaypee Brothers Medical Publishers (P) Ltd. Bengaluru, New Delhi.
12. Rick J Turner and Todd A Durham (2008). Introduction to Statistics in Pharmaceutical Clinical trails. Published by the Pharmaceutical Press- An imprint
    of RPS Publishing,1 Lambeth High Street, London SE1 7JN, UK
13. Symalan, K. (2006). Statistics in Medicine (First Edition) Trivandrum: Global Education Bureau.
14. Sundar Rao, Jesudian Richard - An Introduction to Biostatistics.
15. Suhas Kumar Shetty- Medical statistics made easy

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M.S.-AYURVEDA PRELIMINARY

PRASUTI AVUM STRI ROGA

(Gynecology & obstetrics)

PAPER-II **Theory- 100 marks**

PART A **50 marks**

1. Concept of Tridosha, Dhatu, Upadhatu, Agni, Pancha Mahabhuta in relation to Prasuti and Stri Roga.
2. Concept of Artava and Shukra.
3. Concept of Rasa, Guna, Veerya, Vipak and Karma of Dravya used in Prasuti and Stri Roga.
4. Action and adverse drug reaction related to commonly used plants and Rasa Aushadhi in Prasuti and Stri Roga.
5. Concept of Pathya- Apathya in relation to Prasuti and Stri Roga.
6. Concept of Garbhadhan and Garbha.
7. Concept of Vrana and Vrana dushti.
8. Concept of special therapies of Ayurved used in Prasuti and Stri Roga.
9. Concept of Ashtavidha Shastra Karma,Yantra & shastra used in Prasuti and Stri Roga

Part B **50 marks**

1. Applied anatomy and physiology of genito-urinary system, abdomen, pelvis, pelvic floor, anterior abdominal wall, inguinal ligament, inguinal canal, vulva, rectum and anal canal.
2. Abnormal development, structure and function of female and male urogenital systems
3. Development, structure and function of placenta, umbilical cord and amniotic fluid.
4. Physiological and neuro-endocrinal changes during puberty, adolescence and menstruation.
5. Introduction of hormones related with gynaecology and obstetrics. Ovulation, fertilization, climacteric and menopause. Biophysical and biochemical changes in uterus and cervix during pregnancy and labour.
6. Pre-natal, Natal and Post natal counseling and examination.
7. Pharmacological study of drugs used in gynaecology and obstetrics.
8. Knowledge of diagnostic techniques used in gynaecology and obstetrics.
9. Basic Knowledge of pathological and biochemical investigation used in gynaecology and obstetrics.
10. Ethics, law and Acts Related to gynaecology and obstetrics – laws of abortion and adoption.
11. Knowledge of contraception and sterilization procedures.
12. Pre-operative and post operative care in gynaecology and obstetrics.

PRACTICAL

100 marks

Contents:

1. Hospital duties in OPD, IPD, labor room, OT and casualty
2. History taking and counseling - 25 cases.
3. Labor cases - observation/performing - 10 cases
4. Knowledge of instruments required in gynecology and obstetrics practices.
5. Ayurvedic diagnostic and therapeutic procedures.
6. Fluid therapy and blood transfusion.
7. Contraception and sterilizations.
8. Pre-operative, operative and post operative procedures.

Distribution of marks (Practical)

Case records of Patients in Detail (25 Cases)	- 20 Marks
Bedside clinical case taking	
Long case	- 20
Short case	- 10
Procedures	- 15 Marks
Identification of instruments, X-ray etc & Spotting	- 15 Marks
Viva - voce	- 20 Marks

REFERENCE BOOKS:

1. Related matter from all tha samhitas and their commentaries.
2. Prasuti tantra evum stree roga by prof Tewari P V
3. Concepts of gynecology Dr Nirmala G Joshi.
4. Prasuti Tantra Prof. M. Dwivedi
5. Stree roga vigyan - Dr VNK Usha
6. Navya prasuti Vigyan Dr Pooja Bharadwaja
7. Text book of gynaecology- Berek and Novak.
8. Text book of obstetrics- Williums
9. Text book of obstetrics- D C Dutta
10. Text book of gynaecology - D C Dutta
11. Gabbe's normal and problem pregnancies.
12. Human embryology by Saddler.
13. Jeffcoat's principles of gynaecology
14. Te linde's gynaecological surgery.

FINAL M.S.-AYURVEDA

PRASUTI AVUM STRI ROGA

(Gynecology & obstetrics)

Theory- 400 Marks (100 Each) **Practical and Viva-Voce- 100 Marks**

PAPER – I **100 Marks**

GARBHAGARBHINI VIGYANA

1. Applied Anatomy of female Genito urinary system, Pelvis and Pelvic floor. Pelvic assessment and foetal skull.
2. Physiology, Neuro endocrinology and Pathology of puberty and Neuroendocrine control of menstrual cycle. Artava, Rituchakra, Streebija, Pumbija.
3. Garbha Sambhava samaagri, Garbhadharana, Pre-conceptional counseling and care , Pumsavana, Garbhasya shad dhatvatmakata, Garbhavakranti, Matrijadi bhava, Garbha vriddhi, role of Panchamahabhuta in the formation and development of foetus. Garbhasya avayavotpatti, Fundamentals of reproduction – gamatogenesis, Fertilization, Implantation and early development of human embryo.
4. Apara, Garbhodaka Jarayu, Nabhinadi. Placenta, amniotic fluid, membranes and umbilical cord – their formation, structure, Functions and abnormalities. Garbha – Poshana, Garbha shareekriya vaishishtyam, Garbha lingotpatti, Garbha varnotpatti, Garbhasya masanumasika vriddhi. Foetal physiology, circulation, Foetal growth and development.
5. Bija – Bijabhaga – Bijabhagavayava janya garbhanga vikrithi. Genetics, Birth defects and other teratologic abnormalities.
6. Garbhini nidana, sapekshanidana, Garbhakalina matrigata parivartana, lakshana, Dauhrida. Diagnosis and differential diagnosis of pregnancy, anatomical and physiological changes during pregnancy, Endocrinology related to pregnancy, Immunology of pregnancy.
7. Garbhiniparicharya, Masanumasika Pathya Apathya evum Garbha upaghatakara bhava. Ante Natal care, examination invstigations and management.
8. Garbhasankhya nirnay, Bahu apatyata, multiple pregnancies.
9. Garbhavyapada – causes, clinical features, complications, management and

treatment of Garbhasrava and Garbhapada, Upavishtaka, Nagodara /Upashushka, Lina Garbha, Goodagarbha, Jarayu Dosha, Antarmrita garbha, Garbha shosha, Garbha kshaya, Bhutahrita garbha, Raktagulma. Abortions, I.U.G.R, Intrauterine Foetal death, Ectopic pregnancy, gestational trophoblastic diseases.

10. Garbhini vyapada – nidana panchaka and chikitsa of garbhini vyapad. Early recognition, differential diagnosis and prompt management of pregnancy complications, Emesis and Hyperemesis gravidarium, Anaemia, Pregnancy Induced Hypertension, Pre-eclampsia, Eclampsia, Antepartum hemorrhage, Rh-incompatibility. Management of pregnancies complicated by medical, surgical or Gynecological disorders in consultation with the concerned specialties by team approach.
    a. Pyrexia, Heart disease, Diabetes mellitus, Liver disorders, Respiratory diseases, Renal diseases, Epilepsy, Hypertensive disorders.
    b. Fibroids, Ovarian tumors, Genital prolapse.
    Infections in pregnancy: Toxoplasmosis, Viral infections, Tuberculosis, UTI, Rubella, CMV, Hepatitis-B, Herpes, Syphilis and other Sexually Transmitted Infections including HIV etc., Prevention of mother to child transmission of HIV infection (PMTCT).
11. Jataharini relate to garbhini avastha
12. Evaluation of Foetal and Maternal health in complicated pregnancies by making use of diagnostic modalities.
13. Prenatal diagnosis of foetal abnormalities and appropriate care. PNDT Act and its Implications.
14. **Panchakarma and Yoga in Prasuti tantra**
    Vishesh adhyayana of –

Ashtanga Hriday Sharira	-	Adhyaya 1st (Garbhavkranti)
Sushruta Samhita Sharira	-	Adhyaya 3rd (Garbhavkranti)
Charak Samhita Sharira	-	Adhyaya 8th (Jatisutriya)

PAPER – II **100 Marks**

PRASAVA – VIGYANA

Prakrit Prasava

1. Prasava paribhasha, Prasava kaal, Prasava prarambha karana, Prasava kalina garbha

sthiti, Aavi, Sutikagara.

a) Initiation and onset of parturition.
b) Examination and evaluation of patient in labour.
c) Physiology of labour.
d) Mechanism of labour.
e) Selection of place of delivery and labour room.

2. Prasava avastha evum paricharya
    a) Stages of normal labour
    b) Intrapartum maternal and foetal monitoring
    c) Management of normal labour

Prasava vyapad

1. Etiopathogenesis, clinical features, prevention and management of Garbhasanga, vilambita prasava, Mudhagarbha and Apara sanga.
    a. Prolonged labour.
    b. Cephalo pelvic disproportions
    c. Malpresentations
    d. Obstructed labour
    e. Methods of Induction and Augmentation of labour.
2. Complications of different stages of labour
3. Obstetric management of high risk Pregnancies- Pre eclampsia, Eclampsia, Diabetes, cardiac diseases, Asthma, Epilepsy, Ante partum haemorrhage, Preterm & Premature rupture of membranes, Preterm and Post term delivery, Multiple pregnancy, IUGR & HIV –AIDS
4. Still birth- diagnosis, complications and management.
5. Foetal distress

Jatamatra / Navajata Shishu paricharya

1. Examination and management of neonate.
2. Management of birth asphyxia.
3. Detection of congenital malformation in newborn and timely referral for correction.

Sutika Vigyana

1. Sutika Paribhasha, kala maryada, paricharya.
2. Sutika vyadhi and their chikitsa.
3. Stana sampat, Stanya utpatti, Stanya sampat, Stanya pariksha, Stanya vriddhi, Kshaya and dusti karana, lakshan and its chikitsa, stana shotha, stana vidhradhi.
4. Lactation disorders

5. Normal and abnormal puerperium.

Obstetric Shock and management

1. Raktadhana: blood transfusion and replacement of blood constituents.
2. Management of fluid and electrolyte imbalance in obstetrics.

Drugs used in obstetric practice, indications/contra indications, doses and side effects. (Modern and Ayurvedic)

Recent studies and advancement in the field of Prasuti Tantra.

Vishesha Adhyayana of –

Ashtanga Hridaya Sharira Sthana 2nd Adhyaya – Garbha vyapad

Sushruta Samhita Nidana Sthana 8th Adhyaya – Mudhagarbha nidana

Sushruta Samhita Chikitsa Sthana 15th Adhyaya – Mudhagarbha Chikitsa

PAPER – III **100 Marks**

STREE ROGA VIGYANA

1. **Disorders of menstruation and female reproductive system.**
   a. Congenital malformations of female genital tract.
   b. Artava dushti, Artava vriddi, Artava kshaya, Asrigdara, Anartava, and Kashtartava.
   c. Genital infections including sexually transmitted infections.
   d. Abnormal vaginal discharges.
   e. Arsha, Yonikanda, Granthi, Arbuda.
   f. Abnormal uterine bleeding, Endometriosis, fibroid uterus, Adenomyosis, Polycystic ovarian syndrome and neoplasia of female genital organs.
   g. Endocrinological disorders affecting female reproductive system.
   h. Somaroga.
2. **Detailed Study of Yoni Vyapada mentioned by different Acharyas with their commentaries and all possible correlations with modern gynecological diseases.**
3. **Bandhyatva**
   a. Hetu, Bheda, Pariksha, and Chikitsa.
   b. Detailed study of causative factors, Investigations with recent advances in management of infertility, Adoption law.
4. **Stanaroga**

   Detailed study of Stanashotha, Stanakilaka and Stanavidradhi, stana granthi, Stanarbuda.

Fibrodenoma, Fibroadenosis breast, Aberation in the normal development and Involution of breast (ANDI)

Examination of breast, diagnosis and differential diagnosis of breast lump.

5. **Measures of contraception**
    a. Ayurvedic view of Garbha nirodha and Garbhapatkara yogas.
    b. Temporary Contraception
    c. National Health programme to improve maternal and child health, Social Obstetrics and Vital Statistics (maternal and perinatal and morbidity).
6. **Sthanik chikitsa**
   Detailed study of Pichu, Varti, Dhupan, Dhavana, Parisheka, lepa, kalkadharana, Uttarabasti, Agnikarma and Kshara Karma.
7. **Rajo Nirvritti -** Climacteric and menopause.
    - Geriatric health care
8. Study of modern diagnostic techniques and investigations.
9. Drugs used in obstetric practice, indications/contra indications, doses and side effects.(Modern and Ayurvedic)
10. Panchakarma & Yoga in streeroga
11. Recent studies and advancement in the field of Stree Roga.
12. **Vishesha Adhyayana of –**

    Charaka Samhita Chikitsa Sthana – 30th Adhyaya – Yonivyapad Chikitsa

    Sushruta Samhita Uttara Tantra – 38th Adhyaya – Yonivyapad Pratishedha

    Kashyapa Samhita Kalpa Sthana – Shatapushpa Shatavari, Lashuna kalpa Adhyaya

PAPER – IV **100 MARKS**

PRASUTI TANTRA- STREE ROGA- SHALYA KARMA

General principles of Gynecological and Obstetrical Surgeries. Suturing, suture materials, sterilization, autoclaving etc, Analgesia and Anaesthesia in Obstetrical and Gynaecological operative procedures.

Operative Obstetrics

Decision making, techniques, diagnosis and management of surgical complications.

Dilation and evacuation, Hysterotomy, Provision of safe abortion services –selection of

cases, techniques and management of complications, septic abortion, criminal abortion, MTP Act.

Cervical encirclage.

Instrumental delivery (Forceps, vacuum extraction), Episiotomy, perineal tear repair, Caesarean Section, Manual removal of Placenta, Caesarean Hysterectomy. **Operative Gynaecology**

Selection of cases, technique and management of complications of minor and major gynaecological procedures.

Dilatation and Curretage, Cervical cauterization.

Polypectomy, Myomectomy, Cystectomy, Oophorectomy. Marsupilisation, punch biopsy, endometrial biopsy.

Surgical sterilization procedures.

Hysterectomy.

Surgical procedures for genital prolapse.

Surgical management of benign genital neoplasm.

Recent advances in Gynaecology and Obstetrics – Diagnostic and therapeutics

Shock and its management, Blood Transfusion, Fluid and electrolyte imbalance, Fluid therapy.

Record keeping, ethical and legal issues involved in Obstetrics and Gynaecology.

Medico-legal aspects – ethics, communication and counseling in Obstetrics and Gynaecology

Emergency care in Obstetrics and Gynaecology.

Content of Practical

1. Practical training to conduct.
    - Normal and Complicated deliveries
    - Assisted/ Instrumental deliveries
    - Caesarean Section
    - Neonatal resuscitation
2. Practical knowledge of garbhini paricharya, sutika pricharya and masaanumasik garbha Vriddhi.
3. Practical training to perform Obstetrical and Gynaecological Surgeries.
4. Practical training to provide Family Welfare/ Planning services, safe abortion methods along with surgical sterilization.
5. Practical knowledge and practice of all relevant equipment, Procdures, complications, Emergencies with their management.
6. Practical knowledge of Yogasanas and pranayam useful in Stree Roga and Prasuti Tantra.

7. Practical knowledge of Panchakarma and Sthanik Chikitsa used in Stree Roga and Prasuti Tantra.
8. Practical knowledge of recent advances in Gynaecology and Obstetrics.

Pattern of Practical Examination **100 Marks**

1. Practical Recird Book - 10 Marks
2. Bed side examination
   Short Case - 10 Marks
   Long Case - 20 Marks
3. Identification of the Instruments/X-ray/ USG plate - 10 Marks
4. Thesis Presentation - 25 Marks
5. Viva Voce - 25 Marks

Reference Books-

1. Related matter from all the Samhitas and their commentaries.
2. Prasuti Tantra evum Stree Roga by - Prof Tewari P V
3. Concepts of Gynaecology - Dr Nirmala G Joshi
4. Prasuti Tantra - Prof. M. Dwivedi
5. Stree Roga Vigyan - Dr VNK Usha
6. Navya Prasuti Vigyan - Dr Pooja Bharadwaja
7. Text book of Gynaecology - Berek and Novak.
8. Text book of Obstetrics - Williams
9. Text book of Obstetrics - D C Dutta
10. Text book of Gynaecology - D C Dutta
11. Gabbe's normal and problem pregnancies.
12. Human Embryology by Saddler.
13. Jeffcoat's principles of Gynaecology
14. Te linde's Gynaecological surgery.

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2.11 No: of hours per subject

See Clause No. 2.10

2.12 Practical training

See Clause No. 2.10

2.13 Records

Relevent records are to be maintained

2.14 Dissertation: As per Dissertation Regulations of KUHS

1. The title of the dissertation along with the synopsis, with approval of the Ethic Committee constituted by the Institution as per Regulations of the University, shall be submitted to the University with in a period of six months from the date of admission to PG course.
2. If the student fails to submit the title of dissertation and synopsis within the period specified under sub regulation(1) his terms for final PG course will be extended for six months or more in accordance with the time of submission of the synopsis to the University.
3. The synopsis of the proposed scheme of work should indicate the familiarity of the student with the proposed theme of work, the name of the department and the name and designation of the guide or supervisor and co-guide, if any. The University should approve the synopsis not later than three months after submission of the synopsis.
4. For approving the title a scrutiny Committee shall be constituted by the University.
5. The University should display the approved synopsis of dissertation on their website.
6. The subject of every dissertation shall be research oriented , practical oriented, innovative and helpful in the development of Ayurveda. The subject of the dissertation shall have relation with the subject matter of the speciality.
7. Once the title for dissertation is approved by the scrutiny committee of the University, the student shall not be allowed to change the title of the proposed theme of work without permission of the University.
8. No student shall be allowed to submit the dissertation before six months of final year However, the student shall continue his or her regular study in the institution after

submission of dissertation to complete three years.

9. The dissertation shall contain the methods and data of the research carried out by the student on the problem selected by him and completed under the guidance of the teacher approved by the University.
10. The dissertation shall consist critical review of literature, methodology, results of the research, discussion on the basis of research findings of the study summary conclusion, and references cited in the dissertation should be suitable for publication
11. The dissertation shall consist of not less than forty thousand words.
12. The dissertation shall contain, at the end, a summary of not more than one thousand five hundred words and the conclusion not exceeding one thousand words.
13. The guide or supervisor shall be a person of status of a professor or Reader/Associate professor, Lecturer / Assistant professor with five years University approved teaching experience in the subject or three years as Co-Guide.
14. Five copies of the bound dissertation along with a certificate from the supervisor or guide should reach the office of the Controller of Examinations of the University four months before the final examination.
15. The dissertation shall be assessed by two external and one internal examiners appointed by the University.
16. The dissertation shall be accepted only after the approval of examiners appointed under sub-regulation (17) and in case of disapproval by one external examiner, the dissertation shall be referred to third examiner.
17. If the dissertation is not accepted by two external examiners, the same shall be returned to the student with the remarks of the examiners and the student can resubmit the dissertation after making necessary improvement in the light of examiners report to the University within a further period of six months.
18. The student shall be permitted to appear in the final examination of Post-graduate degree course only after examiners appointed for the purpose have approved the dissertation.

2.15 Speciality training if any

See Clause No. 2.10

2.16 Project work to be done if any

As directed by the HOD

2.17 Any other requirements [CME, Paper Publishing etc.]

Publication / acceptance of atleast 1 research paper / article in a scholarly journal.

2.18 Prescribed/recommended textbooks for each subject

Given under clause 2.10

2.19 Reference books

Given under clause 2.10

2.20 Journals

List of Journals

1. Journal of Ayurveda – National Institute of Ayurveda, Department of AYUSH, Madhav Vilas Palace,Amer Road, Jaipur – 302002. Chief Editor – Prof. Mahendra Singh Meena, Director.
2. AYU - An International Quarterly Journal of Research in Ayurveda The Executive Editor-*AYU*, Room No.412, 4th Floor, New Institute for Post Graduate Teaching and Research in Ayurveda building, *Gujarat Ayurved University*, www.ayujournal.org/
   Chief Editor Prof. P.K. Prajapati
   Director, IPGT & RA, Gujarat Ayurved University, Jamnagar
3. *JRAS - JOURNAL* OF DRUG RESEARCH IN AYURVEDA AND SIDDHA. *Journal* of Research in Ayurveda and Siddha ***ccras****.nic.in/publication/****Journal****ofResearchinAyurvedaSiddha.htm Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
4. Journal of Research in Ayurveda and Siddha, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
5. Journal of Indian Medical Heritage, *Chief Editor* – Prof. Vd. K.S.Dhiman, Director General, CCRAS, New Delhi.
6. Arya Vaidyan – Chief Editor, Dr. M.R. Raghava Varrier, Department of Publications, Aryavaidyasala, Kottakkal.
7. *Ancient* Science *Life*, Official publication of AVP Research Foundation, Coimbatore, India. www.ancientscienceoflife.org/

8. *HEALTH SCIENCES - healthsciences.ac.in/*Open Access Peer Reviewed E-*Journal*. kerala University of Health Sciences, Thrissur.
9. Journal of Indian Systems of Medicine. Editor – Dr. K.S.R. Prasad, Datta Megha Institute of Medical Sciences, Wardha – 442004, Maharashtra
10. J-AIM – Journal of Ayurveda and Integrative Medicine. Editor in Chief – Bhushan Patwardhan, FRLHT, P.O. Attur, Via Elahanka, Bangalore – 560064
11. Ayurveda Vikas – Editor, Ayurveda Vikas, Dabur Tower, Kaushambi, Shahidabad, Gaziabad Dist.,U.P. 201010
12. Dhanwantari – Managing Editor, Amrita Danwantari, PNNM Ayurveda College, Cheruthuruthy, Shornur, Kerala. – ISSN 2349 – 123x
13. IJAR – International Journal of AyurvedaResearch, AYUSH, Govt. of India,Ministry of Health & Family Welfare, Red Cross Building, New Deli – 110001.
14. IJNPR - Indian Journal of Natural Products & Resources, CSIR – NISCAIR
15. IJTK - Indian Journal of Traditional Knowledge, National Institute of Science Communication and Information Resources, Dr K.S. Krishnan Marg, (Near Pusa Gate), New Delhi – 110012
16. PROBE, The Editor, Scientific Publications Divisions, The Himalaya Drug Company, Makali, Bangalore – 562123.
17. International Journal of Research in Ayurveda and Pharmacy (IJRAP), dr. Shalini Sharma, Administrative Office, Moksha Publishing House, 42-A, Anand kunj, Tilak Nagar Colony, Rampur – 244901, UP.
18. Glitters of Ayurveda , Publication division , SNIASR,Puthoor, Kollam,E-mail snayurveda@gmail.com

2.21 Logbook

Shall be maintained in all Post Graduate Courses. All academic work should be maintained and shall be countersigned by concerned HoD

3 EXAMINATIONS

3.1 Eligibility to appear for examinations

A. Preliminary examination
A minimum of 80% attendance and the candidate should have submitted the Title and Synopsis of the ensuing research work in time.
B. Final examination
A minimum of 80% attendance both in second and third years taken together.
Accepted Dissertation work

3.2 Schedule of Regular/Supplementary examinations

The University shall conduct not more than two examinations in a year

3.3 Scheme of examination showing maximum marks and minimum marks

1. Generally two examinations will be conducted in an year. The preliminary examination at the end of one academic year after admission shall be conducted in the following subjects:

Paper I

Part-A Research Methodology

Part-B Bio/Medical Statistics

Paper II

Part-A Applied aspects of fundamentals regarding concerned subjects

Part-B Concerned subject

2. The student shall have to undergo training in the department concerned and shall maintain month-wise record of the work done during the last two years of study in the speciality opted by him/her as under.

I Study of literature related to speciality

II Regular clinical training in the hospital for student of clinical subject.

III Practical training of research work carried out in the department, for student of non clinical subject.

IV Active participation in various seminars, symposia and discussions.

V Finalization of topic of dissertation and synopsis.

VI The assessment of the work done during the first year on the above point shall be done at the time of preliminary examination;

If an Examination could not be conducted due to a local Bandh or any other difficulties in conducting Examination, that particular Examination conducted on the next working day.

SCHEDULE OF EXAMINATIONS

a. The preliminary examination shall be conducted at the end of one academic year after admission;

b. The final examination shall be conducted on completion of three academic years after the admission to PG course;

c. Examination shall ordinarily be held in the month of June or July and November or December every year;

d. For being declared successful in the examination, student shall have to pass all the subjects separately to be announced as pass.

e. The student shall obtain minimum 50% marks in Practical and theory subjects separately to be announced as pass.

f. If a student fails in preliminary examination, he/she shall have to pass before appearing in the final Examination;

g. If the student fails in theory or practical in the final examination he/she can appear in the subsequent examination without requiring to submit a fresh dissertation;

h. The post- graduate degree shall be conferred after the dissertation is accepted and the student passes the final examination.

CONDUCT OF EXAMINATION

1. The final examination (a) dissertation; (b) written papers; and (c) clinical/Practical and oral examination, as the case may be.

2. There shall be four theory papers in each speciality and one practical or clinical and Viva-voce examination in the concerned speciality or group of sub-specialities selected by the student for special study.

3. The student shall have to publish / get accepted at least one Research paper on the basis of his research work in one Journal based on his dissertation and one paper presentation in Regional level Seminar.

QUESTION PAPER PATTERN

Question paper pattern will be as per recommendations of the Board of Studies. The pattern is long essay for 20 marks -one question

Short essay 10 marks - Eight questions

Total 9 questions for 100 marks

3.4 Papers in each year

Given under clause no.2.10

3.5 Details of theory exams

Given under clause. 2.10

3.6 Model question paper for each subject with question paper pattern

Model Question Paper

KERALA UNIVERSITY OF HEALTH SCIENCES

MS. (AY) – PRELIMINARY EXAMINATION

PART II- MOULIKA SIDHANTA

PRASOOTI & STRIROGA

Time: 3 hours Maximum marks: 100

(10x10 marks=100)

1. Define and describe different aspects of 'Arthavam'. Describe ovulatory cycle and Diagnosis of ovulation.

2. Explain in detail the applied aspects of influence of 'Panchamahabhuta' and shad Bhavas on the development of human embryo.

3. Describe 'Garbha Poshanam at different stages of development of garbham.

4. Write in detail the 'garbhopaghatakarabhavas' and its effect on developing foetus.

5. Describe 'Garbha sangha' and its management.

6. Describe the clinical features of Stanarbuda and its management.

7. Describe the clinical features of Vatiki and Paitiki along with management.

8. Describe 'Garbhasayamukha dehanam'.

9. Describe Vandhyakarana shastrakarma'.

10. Write short note on:-

a. Medical termination of pregnancy.

b. Makkalla vidradhi.

MODEL QUESTION PAPER

Final Year PG Ayurveda Degree Examinations

PRASUTI TANTRA- STREE ROGA

PAPER – I Garbhagarbhini Vigyan

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1) Describe the causes and investigations of repeated pregnancy loss with Ayurvedic correlation and discuss the role of jataharinis.

Short essays **(8×10 = 80 marks)**

2) Discuss beeja,beejabhaga and beejabhagavayava in relation to congenital anomalies.

3) Describe maternal physiological adjustments to pregnancy.

4) Write diagnosis and complications of gestational diabetes and discuss Ayurvedic management.

5) Describe the role of ultrasound scan in the diagnosis of foetal abnormalities.

6) Discuss the importance of garbhini paricharya in the outcome of labour.

7) Discuss and compare etiology, diagnosis and management of Upavishtaka, Nagodara and Leena garbha.

8) Write the importance of pelvic dimensions in obstetrics.

9) Describe diagnosis and complications of bahu apatyata.

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Final Year PG Ayurveda Degree Examinations

PRASUTI TANTRA- STREE ROGA

PAPER –II Prasava Vigyan

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Describe maternal and foetal monitoring of different stages of labour.

Short essays **(8×10 = 80 marks)**

2. Write sootikaparicharya and discuss its significance.
3. Explain mechanism of labour and diagnosis of occipito posterior positions.
4. Define PPH and write causes, diagnosis and management.
5. Write methods of resuscitation of new born baby.
6. Briefly explain the types of abnormal uterine action.
7. Write causes, clinical features and management of Vilambita Prasava
8. Write diagnosis, complications and management of stillbirth.
9. Describe the physiology of lactation .Write stanya dushti lakshana with management.

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Final Year PG Ayurveda Degree Examinations

PRASUTI TANTRA- STREE ROGA

PAPER –III STREE ROGA VIGYAN

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Describe nidana, lakshana and samprapti of conditions with excessive uterine bleeding.

Discuss the significance of modern investigation procedures in diagnosis and management

Short essays **(8×10 = 80 marks)**

2. Write clinical features, investigations and management of Vatiki.

3. Describe the Ovarian factors of infertility.

4. Discuss supports of uterus and outline management of mahayoni.

5. Write causes, investigations and management of karnini.

6. Discuss the role of Ayurveda in the prevention and management of sexually transmitted diseases.

7. Describe indications and procedure of uttaravasthi and discuss the benefits of uttaravasthi prayoga of any two oushadha yogas in specific stree rogas.

8. Write differential diagnosis and investigations of a lower abdominal mass in a female of reproductive age.

9. Write clinical features of post-menopausal syndrome and discuss its management.

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Final Year PG Ayurveda Degree Examinations

PRASUTI TANTRA- STREE ROGA

PAPER –IV PRASUTI- STREEROGA SHALYA KARMA

Time: 03 hours **Maximum Marks: 100**

Answer all questions

Essay **(1×20 = 20 marks)**

1. Describe indications, procedure, and complications of lower segment caesarean section with pre and post-operative care.

Short essays **(8×10 = 80 marks)**

2. What is the regional anaesthesia techniques used in gynaecological surgery? Explain briefly.

3. Describe indications and procedure of manual removal of retained placenta.

4. Write methods and complications of induction of labour.

5. Describe surgical management of dysfunctional uterine bleeding.

6. Describe procedure of vaginal hysterectomy.

7. Write indications, contraindications and complications of myomectomy.

8. Write indications, procedure and complications of cone biopsy of cervix.

9. Write prerequisites for forceps delivery and describe procedure of outlet forceps delivery.

3.7 Internal assessment component :

Not applicable

3.8 Details of practical/clinical practicum exams

Given under clause no.2.10

3.9 Number of examiners needed (Internal & External) and their qualifications

The preliminary examination and final examination will be held in practical, clinical and oral examinations. The final examination shall be conducted by a team of 4 examiners (Retired or Serving) out of which one should be external from out of the state. The

examiners should be minimum of Reader Level or should have minimum 8 years PG teaching experience.

Preliminary Examination - 2 examiners shall be there to conduct the examination out of which one shall be from external zone.

Final year - four examiners (Retired or Serving) out of which 2 should be external but a minimum of 3 examiners should be for final year PG Ayurveda Examination

3.10 Details of viva:

Viva-voce shall be conducted separately by each examiner and coordinated by the senior most internal examiner. The same person shall finalize the mark sheet of practical and Viva-voce examinations, in consultation with the other examiners.

1. The examination shall be aimed to test the clinical acumen, ability and working knowledge of the student in the practical aspect of the speciality and his/her fitness to work independently as a specialist.
2. The clinical examination shall aim at a careful assessment of the competence of the student, so that his/her familiarity with Ayurveda and scientific literature in the speciality could be judged.
3. The Viva-voce, part of the practical examination shall involve extensive discussion on any aspect of subject/speciality.

4. INTERNSHIP

Not applicable

5. ANNEXURES

5.1 Check Lists for Monitoring: Log Book, Seminar Assessment etc. to be formulated by the curriculum committee of the concerened Institution