

# 2019 Scheme

Q.P. Code: 215001

Reg. no.: .....

Second Professional MBBS Degree Supplementary (SAY) Examinations

March 2025

## Microbiology Paper I

Time: 3 Hours

Total Marks: 100

- Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers
- Indicate the question number correctly for the answer in the margin space
- Answer all parts of a single question together • Leave sufficient space between answers
- Draw table/diagrams/flow charts wherever necessary

### 1. Multiple Choice Questions

(20x1=20)

**The MCQ questions (Q.No. i to Q.No. xx) shall be written in the space provided for answering MCQ questions at page No. 51 of the answer book (the inner portion of the back cover page (PART III)).**

**Responses for MCQs marked in any other part/page of the answer book will not be valued**

**Read the following clinical history and select the most appropriate response for questions (i) -(v)**

A 65 year old male with valvular heart disease, presented to the medicine OPD with history of fever, chills, myalgia and lethargy for last two weeks. He gave a history of under going a dental procedure two weeks ago. On examination, he was febrile and tachypneic. On auscultation there was a new onset murmur.

Transesophageal ultrasound showed vegetations on the mitral valve

- What is the most probable diagnosis
  - infective endocarditis
  - Rheumatic heart disease
  - Congestive cardiac failure
  - Hemolytic anemia
- Which of the following is important for diagnosis
  - Same pathogen isolated from 3 blood culture samples
  - Antibodies to Antistreptolysin O
  - Antibodies to Rheumatoid factor
  - High levels of troponin
- Criteria to be fulfilled for diagnosis of above condition
  - Modified Bence Jones criteria
  - Modified Dukes criteria
  - Modified SOFA score
  - Amsel's criteria
- A fastidious bacteria of zoonotic origin associated with above condition
  - Coxiella burnetii
  - Escherichia coli
  - Proteus mirabilis
  - Candida albicans
- Commonest agent causing above condition
  - Streptococcus agalactiae
  - Streptococcus pneumoniae
  - Streptococcus pyogenes
  - Viridans Streptococci

**Question numbers (vi)-(x) are multiple response type questions. Read the statements & mark the answers appropriately.**

- Regarding the laboratory diagnosis of HIV infection
  - P<sup>24</sup> antigen detection in window period
  - NACO strategy III is used in blood banks
  - RNA detection by PCR is a confirmatory test
  - Western blot detects antibodies
  - a) 1, 2, 3 are correct
  - b) 1, 3, 4 are correct
  - c) 2, 3, 4 are correct
  - d) 1, 2, 4 are correct
- Regarding chicken pox,
  - Caused by Herpes simplex virus
  - Rashes are vesicular in nature
  - Air borne transmission present
  - Prevention by vaccination
  - a) 2, 3, 4 are correct
  - b) 1, 2, 4 are correct
  - c) 1, 2, 3 are correct
  - d) 2 and 4 are correct
- Visceral leishmaniasis
  - Transmitted by sand fly
  - Affects the reticuloendothelial system
  - Diagnostic form is promastigote
  - Effective vaccine is available for humans
  - a) 1, 2, 3, 4 are correct
  - b) 1, 2 are correct
  - c) 1, 2, 3 are correct
  - d) 1, 3, are correct
- Fungal infection of a nail (Onychomycosis) is caused by
  - Candida species
  - Microsporum species
  - Trichophyton species
  - Epidermophyton species
  - a) 1, 2, 3 are correct
  - b) 1, 3, 4 are correct
  - c) 1, 4 are correct
  - d) 2, 4 are correct
- Characteristics of innate immunity include
  - First line of defense
  - Active role of T lymphocytes
  - Memory cells are present
  - Complement system is involved
  - a) 1, 3 are correct
  - b) 1, 2 are correct
  - c) 1, 4 are correct
  - d) 2, 4 are correct

**Question numbers (xi) – (xv) are single response types**

- Patient presents with a painless indurated ulcer on the external genitalia for three months, probable causative agent
  - Treponema pallidum
  - Herpes simplex virus
  - Molluscum contagiosum
  - Haemophilus ducreyi
- Mechanism of resistance to Isoniazid and Rifampicin in Mycobacterium tuberculosis is acquired to
  - Plasmid
  - Mutation
  - Transposon
  - Transduction

(PTO)

- xiii. Gas gangrene is commonly caused by  
 a) Clostridium perfringens    b) Clostridium Tetany    c) Clostridium Difficile    d) Clostridium botulinum
- xiv. Diagnosis of bacterial vaginosis has the following criteria  
 a) Greenish vaginal discharge    b) pH < 4.5    c) Clue cells are seen    d) Pain and etching
- xv. Hand foot mouth disease is by  
 a) Herpes simplex    b) Coxsackie    c) Rubella    d) Varicella zoster

**Question numbers (xvi) – (xx) consists of two Statements-Assertion (A) and reason (R). Answer these questions by selecting the appropriate options given below.**

- xvi. A: Endoscopes are sterilized by autoclave  
 R: Endoscopes are heat Labine  
 a) Both A and R are true, and R is the correct explanation of A    c) A is true but R is false  
 b) Both A and R are true, and R is not the correct explanation of A    d) A is false but R is true
- xvii. A: Used syringe is discarded in red liner, infected plastic waste  
 R: Waste in red liners are insinerated  
 a) Both A and R are true, and R is the correct explanation of A    c) A is true but R is false  
 b) Both A and R are true, and R is not the correct explanation of A    d) A is false but R is true
- xviii. A: In botulism, the patient presents with blurring of vision and difficulty to swallow  
 R: The botulinum toxin affects the Parasympathetic nerves  
 a) Both A and R are true, and R is the correct explanation of A    c) A is true but R is false  
 b) Both A and R are true, and R is not the correct explanation of A    d) A is false but R is true
- xix. A: Hook worm causes iron deficiency anemia  
 R: Anemia is due to chronic blood loss  
 a) Both A and R are true, and R is the correct explanation of A    c) A is true but R is false  
 b) Both A and R are true, and R is not the correct explanation of A    d) A is false but R is true
- xx. A: Lymphogranuloma venerum is sexually transmitted infection  
 R: Lymphogranuloma venerum is transmitted by vectors  
 a) Both A and R are true, and R is the correct explanation of A    c) A is true but R is false  
 b) Both A and R are true, and R is not the correct explanation of A    d) A is false but R is true

### Essays

**(2x10=20)**

2. A 25 year old pregnant lady attended the out patient department with complaints of fever and pain on micturition . Urine microscopy revealed plenty of pus cells and bacteria.  
 a) List the bacterial agents causing urinary tract infections.  
 b) Write a note on asymptomatic bacteriuria and its significance.  
 c) What are the methods of sample collection in a suspected case of urinary tract infection.  
 d) Describe the laboratory diagnosis of urinary tract infection.  
 e) Name two antibiotics which can be prescribed for this patient    (1+3+1+2+3)
3. a) Describe the concept of one health with regards to antimicrobial stewardship  
 b) List three classes of antibiotics with one example for each class  
 c) Name three mechanisms of antibiotic resistance in bacteria with one example for each  
 d) Briefly discuss national action plan for prevention of antimicrobial resistance    (2+3+3+2)

### Short Essays

**(6X6=36)**

4. Type III hypersensitivity
5. List four hospital acquired infections. Describe care bundle prevention for any one of them    (2+4)
6. Classify immunity. Describe acquired immunity with examples    (2+4)
7. Enumerate four common etiological agents for viral hemorrhagic fever. Describe the laboratory diagnosis for any one of them.
8. Name the causative agents of enteric fever. Discuss the laboratory diagnosis    (2+4)
9. A gardner noticed a series of small red ulcerated nodules of 1 cm diameter on the right forearm. She provides history of having repeated thorn pricks at on the arm. Microscopic examination of biopsy revealed cigar shaped yeast forms.  
 a) What is the most likely causative agent of these lesions  
 b) Mention the source and risk factor for this infection  
 c) Add a note on laboratory diagnosis    (1+1+4)

### Short Answers

**(6x4=24)**

10. List the two common viral infections transmitted via needlestick injuries. Explain how these injuries can be prevented    (1+3)
11. Mycotoxins of medical importance
12. Trichomanas vaginalis
13. What is informed refusal. Describe the importance of appropriate documentation of refusal    (2+2)
14. Human papilloma virus and the role of vaccines
15. Describe the life cycle of plasmodium falciparum

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