

# 2019 Scheme

**Q.P. Code: 212001**

**Reg. no.: .....**

## **Second Professional MBBS Degree Regular/Supplementary Examinations**

**December 2024**

### **Pharmacology - Paper II**

**(GIT, Hormones, Antibiotics, Chemotherapy and Miscellaneous)**

**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**

**(1x20=20)**

**The Answers to MCQ questions (Q.No. i to Q.No. xx) shall be written continuously on the first two writing sheets (ie Page No. 3 & 4) only**

**Question Numbers (i) – (v) are Single Response Type**

- The following is the right composition of oral rehydration solution as per WHO standard formula:
  - Sodium chloride, potassium chloride, sodium nitrate, glucose, water
  - Sodium chloride, potassium chloride, trisodium citrate, glucose, water
  - Sodium chloride, potassium hydroxide, sodium bicarbonate, lactose, water
  - Sodium chloride, potassium chloride, sodium citrate, lactose, water
- Octreotide is a long acting synthetic analogue of:
  - Growth hormone
  - Prolactin
  - Somatostatin
  - Gonadotropin releasing hormone
- The drug that inhibits bacterial protein synthesis, useful against *Bacteroides fragilis* and may cause pseudomembranous enterocolitis is:
  - Gentamicin
  - Clarithromycin
  - Clindamycin
  - Minocycline
- Cotrimoxazole is NOT effective against infections caused by:
  - Staph aureus*
  - Hemophilus influenzae*
  - Salmonella typhi*
  - Pseudomonas aeruginosa*
- Substances that precipitate superficial surface proteins without penetrating the cells and toughen the skin making it mechanically stronger and decrease exudation are called:
  - Astringents
  - Emollients
  - Adsorbents
  - Demulcents

**Question Numbers (vi) – (x) are Multiple Response Type. Read the statements and mark the answers appropriately.**

- The following insulin is preferred to be given intravenously in diabetic ketoacidosis:
  - Regular insulin
  - Lente insulin
  - Insulin lispro
  - Insulin glargin
  - 1 & 2
  - 1 & 3
  - 2 & 3
  - 2 & 4
- The adverse effects of following antimicrobials are WRONGLY paired:
  - Gentamicin – Hepatotoxicity
  - Doxycycline – Nephrotoxicity
  - Amikacin – Ototoxicity
  - Vancomycin – Nephrotoxicity
  - 1 & 2
  - 2 & 3
  - 3 & 4
  - 1 & 4
- The following drugs promote gastrointestinal transit and speed up gastric emptying by enhancing coordinated propulsive (prokinetic) activity:
  - Ondansetron
  - Aprepitant
  - Metoclopramide
  - Cisapride
  - 1 & 3
  - 2 & 3
  - 1 & 4
  - 3 & 4
- The following anticancer drugs are purine antagonists:
  - Methotrexate
  - 6-Mercaptopurine
  - 5-Fluorouracil
  - Azathioprine
  - 1 & 4
  - 2 & 3
  - 2 & 4
  - 1 & 3
- The following anthelmintics are effective against *Wuchereria bancrofti* and *Brugia malayi* acting as microfilaricidal:
  - Pyrantel pamoate
  - Ivermectin
  - Diethylcarbamazine citrate
  - Praziquantel
  - 1 & 2
  - 2 & 3
  - 1 & 3
  - 3 & 4

**Question Numbers (xi) – (xv) are based on case scenarios. Read the statements and mark the answers accordingly.**

A 45-year-old woman presents with fatigue, cold intolerance and altered mental status. On examination, she has bradycardia, hypotension, and non-pitting edema in her face and extremities. Her temperature is 35°C, and lab tests reveal elevated TSH with low free T4.

- xii. The preferred drug for her is:
  - a) Carbimazole
  - b) Methimazole
  - c) Thyroxine
  - d) Triiodothyronine
- xiii. Methimazole acts by:
  - a) Inhibiting thyroid hormone synthesis
  - b) Stimulating thyroid hormone release
  - c) Destruction of thyroid tissue
  - d) Interfering with concentration of iodine by thyroid gland
- xiv. The following statement regarding thyroid hormone is FALSE:
  - a) Thyroid hormone is essential for normal growth and development
  - b) Thyroid hormone is anabolic
  - c) Thyroid hormone stimulate lipolysis
  - d) Thyroid hormone facilitates erythropoiesis
- xv. The beta-adrenergic blockers preferred in hyperthyroidism is:
  - a) Propranolol
  - b) Atenolol
  - c) Metoprolol
  - d) Bisoprolol
- xvi. The WRONGLY paired drug and its influence on thyroid function is:
  - a) Amiodarone – inhibits synthesis and release of thyroid hormones
  - b) Cholestyramine decreases the absorption of thyroid hormones in the gut
  - c) Rifampicin decreases metabolism of thyroid hormones by inhibiting microsomal enzymes
  - d) Sulfonamides inhibit the coupling reaction

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

- xvii. Assertion (A): Lactulose is used in hepatic encephalopathy.  
Reason (R): Lactulose is neither digested nor absorbed in the small intestine, therefore retains water and produces soft formed stools by osmotic action.
  - a) Both A and R are true, and R is the correct explanation of A
  - b) Both A and R are true, and R is not the correct explanation of A
  - c) A is true, but R is false
  - d) A is false, but R is true
- xviii. Assertion (A): Sildenafil is used in male sexual dysfunction.  
Reason (R): Sildenafil is a phosphodiesterase inhibitor causes accumulation of cGMP and marked potentiation of actions of nitric oxide.
  - a) Both A and R are true, and R is the correct explanation of A
  - b) Both A and R are true, and R is not the correct explanation of A
  - c) A is true, but R is false
  - d) A is false, but R is true
- xix. Assertion (A): Ticarcillin is combined with Gentamicin for Pseudomonas infection, especially in neutropenic patients.  
Reason (R): Ticarcillin inhibits cell wall synthesis and Gentamicin inhibits protein synthesis and both of them are bactericidal.
  - a) Both A and R are true, and R is the correct explanation of A
  - b) Both A and R are true, and R is not the correct explanation of A
  - c) A is true, but R is false
  - d) A is false, but R is true
- xx. Assertion (A): Penicillin G is a broad-spectrum antibiotic.  
Reason (R): Broad-spectrum antibiotics are known to cause superinfections.
  - a) Both A and R are true, and R is the correct explanation of A
  - b) Both A and R are true, and R is not the correct explanation of A
  - c) A is true, but R is false
  - d) A is false, but R is true
- xxi. Assertion (A): Cyclosporine is used as a part of induction regimen to prevent organ transplant rejection.  
Reason (R): Cyclosporine inhibits TNF $\alpha$  secreted by activated macrophages and other immune cells.
  - a) Both A and R are true, and R is the correct explanation of A
  - b) Both A and R are true, and R is not the correct explanation of A
  - c) A is true, but R is false
  - d) A is false, but R is true

**Long Essays:****(2x10=20)**

2. A 45-year-old male factory worker weighing 60 kg reports to the hospital with cough and expectoration, mild chest pain, weakness and fatigue for the last one month. In addition, he has developed low grade fever for the last one week. He gives history of having suffered from tuberculosis of the lung one year back for which he took treatment from the hospital and became all right in 2 months. He stopped taking the medicines after another 1 month, though he was told by the doctor to continue treatment. The sputum was found to be positive for AFB and X-ray chest showed a 5 cm cavitary lesion in the right middle lobe and fibrotic changes in the upper lobe. He was diagnosed to be a previously treated and defaulted patient of pulmonary tuberculosis.

- Enumerate the first line antitubercular drugs which he would have received in the past. Mention one characteristic adverse effect of each.
- What should be the regimen of antitubercular drugs for this patient now. Explain.
- Write briefly on chemoprophylaxis of tuberculosis.

3. During routine medical check-up a 50-year male office executive with sedentary lifestyle was diagnosed to have developed type 2 diabetes mellitus. His fasting and post-meal blood glucose was 130 mg/dl and 190 mg/dl respectively, HbA1C was 7.8%, BP was 130/82 mm Hg and body mass index was 24 kg/m<sup>2</sup>. He was asymptomatic and investigations revealed no end organ damage. He was advised suitable diet, exercise and other lifestyle modifications.

- Classify drugs used in type 2 diabetes mellitus giving suitable examples.
- Which antidiabetic will you prescribe in this patient. Explain the pharmacological basis for the selection. Write the mechanism of action and adverse effects of the same.

**(5+5)****Short Essays:****(6x6=36)**

- Explain prophylactic use of antimicrobials giving suitable examples.
- Enumerate two drug groups used to treat peptic ulcer with two examples each. Write the mechanism of action of both groups. Write one H.pylori eradication regimen
- Mention two aminoglycosides. Explain four common properties of aminoglycosides. What is post-antibiotic effect.
- How will you treat a case of malaria. What is the treatment given for relapse. Mention the drugs which can be given to prevent malaria while visiting an endemic area.
- Mention Two drugs which can be given to treat enteric fever. Explain the mechanism of action, uses and adverse effects of any one.
- Enumerate Four glucocorticoids. Explain the measures to minimize hypothalamo pituitary adrenal axis suppression. Discuss two other adverse drug reactions of glucocorticoid therapy.

**(2+2+2)****(1+4+1)****(2+2+2)****(2+4)****(2+3+1)****Short Answers:****(6x4=24)**

- Compare and contrast: loperamide and racecadotril.
- Classify insulins according to the duration of action giving suitable examples.
- Mention two anabolic steroids. Enumerate the uses and adverse effects of anabolic steroids.
- Compare and contrast: erythromycin and azithromycin.
- Write briefly on post-exposure prophylaxis of HIV infection after a needlestick injury.
- Write briefly on chelating agents.

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