



All India Institute of Medical Sciences, Kalyani
Second Professional MBBS Examination 2021

Time: 3 Hrs.

Pharmacology (Paper-I)

Marks: 100

- Answer all questions.
- Answer the questions in the same serial order strictly.
- Illustrate your answers with well labelled diagram wherever necessary.
- Answer each section in a separate answer book.

SECTION - A (50 MARKS)

Long answer question:

1. A 58-year-old hypertensive man presents to the emergency department with complain of diaphoresis and crushing chest pain that radiates to his left arm. The physician orders an ECG, checks his cardiac enzymes and diagnosed as Acute Myocardial Infarction. [5+2.5+2.5=10]
 - a. Outline the management of this case
 - b. Explain rationale of β blockers in this scenario.
 - c. Explain role of low dose aspirin with its mechanism of action in this case

Write Short notes on:

2. Select the most appropriate drug and route of administration for the following scenario. Justify with reasons for selection of drug in given condition. [2.5+2.5=5]
 - a. A 20-year-old man is suffering from anaphylactic shock due to administration of penicillin G.
 - b. A 35 year-old male suffering from cardiogenic shock.
3. Explain the following terms with suitable example : [2.5+2.5=5]
 - a. Enzyme induction
 - b. Bioavailability
4. Discuss pharmacotherapy of open angle glaucoma. [5]
5.
 - a. A 37-year-old man is admitted in the intensive care unit with sepsis. He is receiving intravenous (IV) vasopressors to maintain his blood pressure. During morning rounds, you notice his IV cannula has extravasated and the skin around the IV site is cool and pale. What should be done? Describe with justification. [1+1.5=2.5]
 - b. A 59-year-old man is scheduled to undergo a prostate needle biopsy by his urologist. As a preparation for the procedure, he is required to take a fleet enema per rectum and a onetime dose of Ciprofloxacin 500 mg prior to the procedure. He has a prior medical history of diabetes mellitus, which is controlled with diet. Administration of the medication results in a peak plasma concentration of 20 mg/mL. What is the apparent volume of drug distribution? Describe any two important factors that affect apparent volume of distribution. [1+1.5=2.5]

6. Justify the use of drug in following condition. [2.5+2.5=5]
 a. Atropine is given in Organophosphorus poisoning.
 b. Tamsulosin in benign prostatic hypertrophy (BHP).
7. a. Compare and contrast between Frusemide and Thiazide. [3]
 b. Justify role of Thiazides in diabetes insipidus (DI). [2]
8. a. Why Verapamil is preferred in angina but amlodipine in hypertension. [2]
 b. Enumerate drugs used in pregnant hypertensive woman. Describe Mechanism of action and adverse effects any one drug of them. [1+2=3]
9. a. Enumerate one drug of each class of anti-arrhythmic drug. Describe current therapeutic status of digoxin in treating cardiovascular disorder. [2+1=3]
 b. What is the rationale for using spironolactone in Congestive Heart Failure. [2]

SECTION - B (50 MARKS)

Long answer question:

1. A 34-year-old man, Ramu suffers a seizure while in a shopping mall. Witnesses tell the paramedics that the individual lost consciousness and then had rapid contraction and relaxation of his extremities continuously for more than five minutes and repeated similar attack was noticed. [1+2.5+2+2+2.5=10]
 a. What is the diagnosis?
 b. Mention preferred drug and routes for treating seizure in given condition and justify your selection.
 c. What will your line of treatment if not controlled by drug selected in 'b' ?
 d. What are instructions to be given to Ramu and precaution should he take in future to prevent such episodes?
 e. Mentioned mechanism of action and adverse effect of drugs chose answer of question "b"&"c"

Write Short notes on:

2. A 43-year-old man is stabbed in the chest and is brought to the emergency department for evaluation. Because of hemodynamic instability, he is brought to the operating room for thoracotomy. An adequate anesthesia history could not be obtained from the patient. No family member was present at the time of surgery. Upon induction of anesthesia with succinylcholine, the patient's heart rate increased to 150 beats/ minute and experienced muscular rigidity with metabolic acidosis, tachycardia, and hyperpyrexia. [1+2+2=5]
 a. Write name this adverse effect?
 b. Mention the drug and its route for treating given condition?
 c. What is mechanism of action of selected drug in "b" to relieve symptom?
3. A 56-year-old man came to the clinic with complaints of bradykinesia, rigidity, tremors of the skeletal muscles, mask-like face, shuffling gait and "a feeling of persistent restlessness" after beginning a new antipsychotic regimen 2 months ago. The patient has a history of schizophrenia and depression. [1+2+2=5]
 a. Write name of any one drug which may be responsible for this side effects.
 b. What drugs are used for correction of these effects?
 c. Write in brief about other extrapyramidal side effects of prescribed drug.

4. a. Justify use of Allopurinol in chronic gout. [2]
b. Discuss the role of Sumatriptan in the treatment of an acute attack of a migraine. [2]
c. Name two biologicals used for treatment of Rheumatoid Arthritis. [1]
5. Describe advantages and disadvantages of using combination of lignocaine with adrenaline? [2.5+2.5=5]
6. a. What are the advantages of SSRI over TCAs? [2]
b. Mention therapeutic uses of SSRI. [3]
7. Mention clinical uses of [1+1+1+2]
- a. Lithium
b. Sevoflurane
c. Ketamine
d. Carbamazepine
8. Compare and contrast [2.5+2.5=5]
a. Naloxone and Naltrexone.
b. Cisatracurium and Atracurium.
9. a. Classify Nonsteroidal Anti-Inflammatory drugs (NSAIDs) on the basis of Cyclooxygenase (COX) inhibition. [2.5]
b. What are various concerns with selective COX-2 inhibitors? Explain briefly. [2.5]



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SECTION - A (50 MARKS)

Long answer question:

1. A 45-year-old man with 110 kg weight was recently diagnosed with Type-2 diabetes mellitus His fasting blood glucose is 160 mg/dl and 2-hour postprandial glucose is 250mg/dl. [3+2+2+3=10]
 - a. Which drugs will you prescribe first? Justify for your selection.
 - b. What are the common side effects of selected drugs?
 - c. Patient did not attend the target level of glycemic control and HbA1c reduction after prescribed drug then which drug will you add. Justify your answer.
 - d. Enumerate Dipeptidyl peptidase-4 inhibitors. Mention their advantages and disadvantages.

Write Short notes on:

2. Describe five lifesaving uses of corticosteroids. [5]
3. Explain with reasons- [2.5+2.5=5]
 - a. Sustained release preparation of iron is not used for treating iron deficiency anaemia.
 - b. Methylcobalamine is preferred for correcting the neurological defect in diabetic, alcoholic and other form of peripheral neuropathy.
4. Briefly write pharmacotherapy of [2.5+2.5=5]
 - a. Acute severe asthma
 - b. Thyroid storm
5. Discuss in brief with example : [2.5+2.5=5]
 - a. Hormone replacement therapy.
 - b. Role of Bisphosphonates in osteoporosis.
6.
 - a. Explain the mechanism of action of metoclopramide with help of a diagram. [2.5]
 - b. Describe role of probiotics in diarrhoea. [2.5]
7. Describe rationale of triple drug therapy for eradication of H pylori infection for the treatment of peptic ulcer. [5]
8. Choose a right chelating agent for the following conditions with reason: [2.5+2.5=5]
 - a. Acute iron poisoning in children.
 - b. Copper poisoning
9. Compare and contrast between:- [2.5+2.5=5]
 - a. Covaxin and covishield.
 - b. Tacrolimus and Cyclosporine.

SECTION - B (50 MARKS)

Long answer question:

1. A 36-year-old man weighing 50 kg report to the hospital with evening rise of temperature, cough with expectoration, weight loss and fatigue for the last one month. He gives history of having suffered from TB of the lung for one year back for which he took treatment from the hospital and recovered in 2 months. He stopped taking the medicines after another one month though he was told by the doctor to continue treatment. The Sputum microscopy reveals acid-fast bacilli and chest radiography shows cavitory lesions of 5 cm in the right middle lobe and fibrotic changes in the upper lobe. The facility of rapid genotypic tests is not available. [1+3+3+3+1=10]
- Will you start treatment or wait for drug sensitivity test, Justify your decision.
 - What should be the regimen of anti-tubercular drug for this patient?
 - What should be the regimen if diagnosed as multidrug resistance tuberculosis?
 - Mention briefly the mechanism of action and adverse effect of any two of first-line drugs for this disease.
 - Enumerate two newer anti-tubercular drugs.

Write Short notes on:

2. Describe the pharmacotherapy for the following conditions:- [2.5+2.5=5]
- Multidrug Resistance Typhoid fever.
 - 30 year old adult male is suffering from falciparum malaria.
3. For each of the following patient, select the most appropriate antimicrobial for prophylaxis. Mention the dose and duration of treatment. [2.5+2.5=5]
- Post – exposure prophylaxis (PEP) for HIV infection
 - Rheumatic Fever
4. Which drug/ regimen are preferred over the other for the respective condition? Explain with reason. [2.5+2.5=5]
- Sodium Stibogluconate versus Miltefosine for Indian patients are suffering from visceral kala-azar infection.
 - Metronidazole versus Dehydroemetine for amoebic liver abscess.
5. Explain the adverse effects that are common to most of the anticancer agents. Mention the ways to prevent/ reduce each of them. [2.5+2.5=5]
6. Explain with examples:- [2.5+2.5=5]
- Disadvantages of antimicrobial combinations.
 - Post antibiotic effect.
7. Write the mechanism of action of the following drugs:- [2.5+2.5=5]
- Albendazole as anthelmintic.
 - Acyclovir as antiviral drug.
8. Select appropriate drug in the following scenario with justification:- [2.5+2.5=5]
- A 55 year old female suffering from mucormycosis with a history of recent severe COVID-19 infection.
 - A 32 year old male patient diagnosed as a case of Hepatitis C infection
9. Mention clinical uses of the following drugs: [5X1=5]
- Remdesivir
 - Lamivudine
 - Amphotericin B
 - Cobicistat
 - Albendazole