

# Question Paper

Exam Date & Time: 24-Apr-2024 (10:20 AM - 01:00 PM)



**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - APRIL 2024**  
**SUBJECT: PHARMACOLOGY - PAPER I**  
**(REPEATERS - CBME SCHEME)**

**Marks: 80**

**Duration: 160 mins.**

**Answer all the questions.**

1. A 42-year-old male patient presents to the OPD with complaints of a constant headache for the past week. On examination, his blood pressure was found to be 150/90 mm Hg. He was diagnosed with primary hypertension.
  - 1A) Classify antihypertensive drugs. (5)
  - 1B) Briefly explain the mechanism of antihypertensive action, and adverse effects of any one. (4)
  - 1C) Name 2 drugs that can be used in hypertensive crisis/emergency. (1)
  
2. A 34-year-old man presents to his gastroenterologist for further evaluation of persistent heartburn and nausea. He is found to have peptic ulcer disease.
  - 2A) Name 2 proton pump inhibitors. Explain the mechanism of action. (3)
  - 2B) Give one example of a drug from another class for peptic ulcers and name one differentiating factor from proton pump inhibitors. (2)
  - 2C) Explain one treatment regimen (with dose and duration) for H. pylori infection. Explain the rationale for combining the drugs. (5)
  
3. **Answer the following:**
  - 3A) State four advantages and four disadvantages of the intramuscular route of drug administration over the oral route. (4)
  - 3B) A 35-year-old female patient was prescribed tablet diclofenac for her back pain. She reported back a week later with complaints of epigastric pain and heartburn. (4)
    - i) What are the mechanisms by which nonsteroidal anti-inflammatory drugs (NSAIDs) like diclofenac cause gastric mucosal damage?
    - ii) State an advantage and disadvantage of selective COX-2 inhibitors.
  - 3C) Explain the mechanism of action, use and adverse effects of sumatriptan. (4)
  - 3D) Compare and contrast furosemide and hydrochlorothiazide. (4)
  - 3E) A patient with shortness of breath, fatigue and swelling in the feet is diagnosed with congestive heart failure not responding adequately to diuretics. He is prescribed digoxin. (4)
    - i) Explain the mechanism of action and adverse effects of digoxin.
    - ii) Name two drugs that can arrest/reverse disease progression.
  - 3F) Name two different classes of bronchodilators with one example for each. State the uses and adverse effects of any one. (4)

- 3G) Define drug synergism. Explain the two types of synergism with an example for each. (4)
- 3H) Explain the mechanism of action of heparin. Mention two uses and two adverse effects of heparin. (4)
- 3I) A farmer was brought to the emergency room after consuming an organophosphate insecticide with vomiting, labored breathing, excessive sweating, and salivation. On examination, respiration was severely depressed, pulse rate was 50 beats/min and pupils were constricted. Explain the management of this patient. (4)
- 3J) Name two statins. Explain their mechanism of action and mention one characteristic adverse effect. (4)
- 3K) A 32-year-old woman comes to the clinic with complaints of weakness. She looks pale and a blood examination reveals hypochromic microcytic anaemia. She is put on oral iron tablets. (4)
- Mention two oral iron salts.
  - What are the common adverse effects of oral iron therapy and what instructions need to be given to the patient regarding this?
- 3L) Name two microsomal enzyme inducers. Briefly describe two consequences and one possible use of microsomal enzyme induction. (4)
- 3M) i) Mention three cardiac uses of beta blockers and briefly mention the rationale for each use.  
ii) Name 2 non-cardiac uses of beta-blockers. (4)
- 3N) Explain fixed dose combination (FDC) of drugs with an example. Mention two advantages and two disadvantages of FDCs. (4)
- 3O) Name three classes of drugs used in open angle glaucoma with one example of each. Explain briefly the mechanism of reducing intraocular pressure of any one. (4)

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# Question Paper

Exam Date & Time: 27-Apr-2024 (10:20 AM - 01:00 PM)



**MANIPAL ACADEMY OF HIGHER EDUCATION**  
**SECOND PROFESSIONAL YEAR MBBS DEGREE EXAMINATION - APRIL 2024**  
**SUBJECT: PHARMACOLOGY PAPER II**  
**(REPEATERS - CBME BATCH)**

**Marks: 80**

**Duration: 160 mins.**

**Answer all the questions.**

1. A 9-year-old boy presents with history of fever, multiple joint pains and malaise for the past 4 days. There is history of pharyngitis about 20 days back. On examination, temperature is 39.7°C and pulse rate is 116/minute. The boy depicts involuntary choreoathetoid movements of the face and tongue. A diagnosis of acute rheumatic fever is made.
- 1A) Name the preferred antimicrobial drug indicated for treatment of this case with route of its administration. Explain its mechanism of action and adverse effects. (4)
- 1B) Explain the basis for the combination: (4)
- i) Amoxicillin and clavulanic acid.
- ii) Imepenem and cilastatin.
- 1C) Mention four differences between amoxicillin and ampicillin. (2)
- 2A) List four opioid analgesics. Explain two CNS stimulant and two CNS depressant effects of opioids. (6)
- 2B) Explain two contraindications of opioids. (2)
- 2C) Add a note on opioid antagonists. (2)
3. **Answer the following:**
- 3A) A 45-year-old software engineer, presented to the emergency department in a hospital of Manipal complaining of fatigue, headache and fever associated with chills and rigors from 3 days. His blood pressure was 108/70 mm of Hg, his pulse rate was 84 beats/minute and his temperature was 40°C. He had mild abdominal tenderness. Hemoglobin level of 8.5 mmol/L, a thrombocyte count of  $56 \times 10^9/L$ , a leukocyte count of  $4.5 \times 10^9$  cells/L. Examination of a peripheral blood smear was positive for *P. falciparum*. (4)
- i) What is the treatment regimen given in this case?
- ii) Explain the mechanism of action of the antimalarial drugs used in the regimen.
- 3B) A 27-year-old woman presented with fever, chills and generalized weakness for 3 weeks. Laboratory investigations showed leukocytosis with neutrophilia, anemia, thrombocytosis, and elevated alkaline phosphatase. Abdominal ultrasound showed a hypoechoic mass in the liver further characterized as multiple abscesses on contrast enhanced CT. Serology was positive for *Entamoeba histolytica*. (4)

- i) What drugs will be given to treat this patient?  
ii) Explain their mechanisms of action.
- 3C) A HIV patient was recommended cotrimoxazole as prophylaxis for pneumocystis pneumonia. (4)  
i) What is cotrimoxazole?  
ii) Explain the sequential blockade by cotrimoxazole.  
iii) Mention two other indications of cotrimoxazole.
- 3D) List four aminoglycosides. Mention four common properties shared by them. (4)
- 3E) Write the treatment regimen for newly diagnosed case of drug sensitive tuberculosis. The weight of this patient is 55 Kg. (4)
- 3F) A 16-year-old female suddenly falls to the ground and her whole body begins to shake. Her arms and legs move involuntarily. This continues for a minute or two then she is drowsy for about 15 minutes. Skull radiograph and brain CT scan were normal. An EEG demonstrated 6 Hz bioccipital and central phantom spike waves. She was diagnosed with grand mal epilepsy. (4)  
i) Name two drugs effective in this case. Explain their mechanism of action.  
ii) Mention two non-epileptic uses of anti-epileptic drugs.
- 3G) Explain the mechanism of action, uses and adverse effects of Lithium carbonate. (4)
- 3H) Mention four antiparkinsonian drugs belonging to different groups. Add a note on drug induced parkinsonism. (4)
- 3I) Mention four differences between buspirone and diazepam as antianxiety drugs. (4)
- 3J) Name four glucocorticoids. Explain two uses of glucocorticoids. (4)
- 3K) Name two tocolytics and two oxytocics. Explain one use of tocolytic and one use of oxytocic. (4)
- 3L) During routine health checkup a 50 year old 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. He was advised diet modification, exercise and lifestyle modification. (4)  
i) Which oral antidiabetic drug should be prescribed?  
ii) Explain its mechanism of action and its advantages over other antidiabetic drugs.
- 3M) Explain the mechanism of action and adverse effects of oral contraceptive pills. (4)
- 3N) Write briefly on sildenafil. (4)
- 3O) Name two drugs for psoriasis. Explain the mechanism of action and adverse effects of any one. (4)

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