

Question Paper

Exam Date & Time: 01-Jan-2025 (10:20 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND MBBS DEGREE EXAMINATION - DEC 2024/JAN 2025
SUBJECT: PHARMACOLOGY - PAPER I
(CBME SCHEME)

Marks: 80

Duration: 160 mins.

Answer all the questions.

Section Duration: 20 mins

Answer all the questions.

- 1A) Define biotransformation. Briefly explain the phases of biotransformation. (5)
- 1B) Define prodrug and mention two examples. (2)
- 1C) Define first-pass metabolism. Explain two methods that can be used to bypass this. (3)

Answer all the questions.

2. A 55-year-old man presented with complaints of tightness and discomfort over the middle part of his chest felt episodically, particularly after walking briskly or climbing stairs. This is relieved within 5-10 minutes of rest. One or two episodes occur practically every day. The resting ECG was normal, but the stress test was positive. A diagnosis of exertional angina was made and he was prescribed-Tab glyceryl trinitrate 0.5 mg to be put under the tongue as soon as he begins to feel chest discomfort.

- 2A) Describe the mechanism by which nitrates provide relief in angina. What are the adverse effects of nitrates? (4)
- 2B) Explain why nitrates should not be consumed along with sildenafil. (2)
- 2C) Name another class of drugs that can be used in angina with one example. Describe the mechanism by which it provides relief in angina. (4)

Answer all the questions.

3. Answer the following:

- 3A) State four differences between competitive and noncompetitive antagonists. (4)
- 3B) Name two alpha adrenergic blockers. Explain two uses and mention two adverse effects. (4)
- 3C) A 21-year-old lady presents with complaints of episodes of unilateral pulsatile headache for the past two years. Headache is preceded by anorexia, nausea, and vomiting. Earlier the headache was relieved by paracetamol but recently it has become more severe and frequent, recurring almost every week. She was diagnosed with severe migraine.
i) Describe the mechanism of action and adverse effects of sumatriptan.
ii) Name two drugs that can prevent such future attacks. (4)
- 3D) A 60-year-old male patient presented with fatigue and severe headache which was not relieved by analgesics. On examination, his blood pressure was 150/90 mm Hg. He was prescribed a thiazide diuretic. Describe the antihypertensive action of thiazides and their adverse effects. (4)

- 3E) Name four anticholinesterases. Explain two uses of anticholinesterases with an example of a drug used for each. (4)
- 3F) Name two drugs used in chronic gout. Describe the mechanism of action and mention two uses and two adverse effects of any one. (4)
- 3G) Name two antiplatelet drugs. Explain the mechanism of action and mention two uses of any one. (4)
- 3H) A 36-year-old female patient who complained of weakness and breathlessness and had pale skin, was diagnosed with iron deficiency anaemia. She was put on oral iron which was later changed to a parenteral form. (4)
- i) Name two oral and two parenteral iron preparations.
- ii) Mention two indications for the change from oral to parenteral iron.
- iii) What are the precautions to be taken during the use of parenteral iron?
- 3I) Name two inhalational steroids. Explain their uses (with rationale) and mention two specific adverse effects. (4)
- 3J) Explain the mechanism of action and uses of pantoprazole. (4)
- 3K) Define the following and give one example of each: (4)
- i) Prodrug
- ii) Orphan drug
- 3L) Explain two uses of adrenaline with reason. Mention two differences between adrenaline and noradrenaline. (4)
- 3M) Name two second generation antihistaminic drugs and mention two uses. Write two advantages of the second generation drugs over the first. (4)
- 3N) A 74-year-old female patient was admitted with a progressive increase in breathlessness, orthopnoea, and ankle oedema over the previous 3 weeks. She was diagnosed with heart failure and given an angiotensin converting enzyme (ACE) inhibitor. (4)
- i) Name two ACE inhibitors and explain how they provide benefit in heart failure.
- ii) Name two common adverse effects of ACE inhibitors.
- 3O) i) Name two 5-HT₃ (serotonin) antagonists and explain their uses. (4)
- ii) What is the disadvantage of metoclopramide over domperidone?

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Question Paper

Exam Date & Time: 03-Jan-2025 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND MBBS DEGREE EXAMINATION - DEC 2024/JAN 2025
SUBJECT: PHARMACOLOGY - PAPER II
(CBME SCHEME)

Marks: 80

Duration: 160 mins.

Answer ALL questions.

Illustrate your answers with neatly drawn and labeled diagram wherever necessary

1. A 35 year old man, a watchman by profession, presents to the OPD with complaints of cough, loss of weight, and traces of red in the sputum. He also complains of feeling feverish as the day progresses. Sputum examination is positive for AFB (3+).

- 1A) What are the first line drugs used to treat this condition? (2)
- 1B) Explain the mechanism of action of any two of these drugs. (4)
- 1C) Mention one characteristic adverse effect for each of these drugs. (2)
- 1D) Explain the rationale of combining multiple drugs in the treatment of this disease. (2)

2. A 45 year old male with ulcerative colitis was being treated with prednisolone 40 mg/day along with other drugs for the said condition. After being on treatment for about three months, the symptoms of ulcerative colitis started improving. The patient was advised by his friend to stop taking prednisolone as he felt "too much of steroids were bad". The patient abruptly stopped taking prednisolone from the next day itself without consulting his doctor.

- 2A) What is the complication most likely to happen in this patient? Explain. (2)
- 2B) Briefly outline the management of this complication. (2)
- 2C) Explain the different steps taken to prevent or minimize the occurrence of this complication (4)
- 2D) Explain the other adverse effects of prednisolone that may occur in this patient? (2)

3. Answer the following:

- 3A) Explain four factors affecting choice of antimicrobial agent with a suitable example each. (4)
- 3B) Mention two beta lactam antibiotic-beta lactamase inhibitor combinations. Explain the rationale of combining them. (4)

- 3C) Name two aminoglycosides. Explain their mechanism of action. Mention two shared toxicities seen with aminoglycosides (4)
- 3D) A 30 year old executive needs to visit Mangalore for a professional conference for three days and is advised to take chemoprophylaxis for malaria. Explain the regimen that will be employed. Explain its mechanism of action (4)
- 3E) Mention four general toxicities with cancer chemotherapy. Add a note on toxicity amelioration of anticancer drugs. (4)
- 3F) Ritonavir is commonly employed in low doses along with other protease inhibitors (except Nelfinavir). What is this referred to as? Explain the rationale for the same (4)
- 3G) A 30 year old lady is posted for an elective surgical procedure under general anaesthesia. Enumerate four medications with rationale, that are likely to be administered to her before the procedure so as to make the process of anesthesia safe and less unpleasant (4)
- 3H) Mention two SSRIs. Explain two advantages over tricyclic antidepressants. Mention two uses of SSRIs, other than depression (4)
- 3I) Mention two drugs that produce extrapyramidal symptoms. Explain the treatment of iatrogenic parkinsonism with rationale (4)
- 3J) A young adult is rushed to the emergency room from the site of an accident on the highway. On examination, there is a fracture in the upper limb and no apparent head injury. He is in acute pain and is administered morphine. Justify the use of morphine in this situation. Mention four contraindications and two adverse effects of this drug. (4)
- 3K) Mention two drugs which are used as alternatives to lithium. Explain the mechanism of action of lithium. (4)
- 3L) Describe the mechanism of action of buspirone. Mention two advantages of buspirone over benzodiazepines when used in anxiety. (4)
- 3M) A newly married couple approaches the doctor for advice on contraception, and they are given an option of combined oral contraceptive pills among others. List three mechanisms by which this pill acts. Mention two serious complications that can occur with these pills (4)
- 3N) A 21-year-old female with no significant past medical history presented with symptoms such as weight loss, heat intolerance, palpitations, anxiousness, insomnia. She has also experienced a decline in grades at school. She complains of recent changes in menstrual cycle. She is found to have low TSH and high T4 levels. Name two groups of drugs used to treat this condition. Explain the advantages and disadvantages of each. (4)
- 3O) Define a chelating agent. Mention three chelating agents with their specific uses (4)

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