



UNIVERSITY OF RUHUNA – FACULTY OF ALLIED HEALTH SCIENCES

DEPARTMENT OF PHARMACY

THIRD BPHARM PART I EXAMINATION – DECEMBER 2023

PH 3153 PHARMACOLOGY III – SEQ PAPER

TIME: THREE HOURS

INSTRUCTIONS

- There are six questions in part A and B of this SEQ paper.
- Answer all questions.
- No paper should be removed from the examination hall.
- Do not use any correction fluid.
- Use illustrations where necessary.

PART A

1.

1.1. Peptic ulcer disease (PUD) is predominantly caused by *H. pylori* infection, accounting for over 85% of cases.

1.1.1. Outline the pathophysiology of *H. pylori* in the development of peptic ulcers.

(15 marks)

1.1.2. Briefly describe the urea breath test used to detect *H. pylori*.

(20 marks)

1.1.3. Describe the pharmacological management of a PUD patient tested positive for *H. pylori*.

(20 marks)

1.2. Omeprazole is frequently employed in PUD management.

1.2.1. Describe the mechanism of action of omeprazole.

(15 marks)

1.2.2. Briefly describe the advantage of an oral product containing omeprazole combined with sodium bicarbonate.

(15 marks)

1.2.3. Explain the reason for not recommending omeprazole for the patients concurrently taking clopidogrel.

(15 marks)

2.

2.1. Name two naturally occurring glucocorticoids.

(05 marks)

2.2. State two examples of drugs for each category of glucocorticoids.

(15 marks)

2.2.1. Short to medium-acting

2.2.2. Intermediate-acting

2.2.3. Long-acting

- 2.3. Describe the mechanism of action of glucocorticoids in the treatment of inflammatory conditions. (25 marks)
- 2.4. Briefly explain the role of glucocorticoids in the diagnosis of the underlying cause of Cushing's syndrome. (20 marks)
- 2.5. State the adverse effects associated with prolonged systemic use of glucocorticoids in clinical practice. (15 marks)
- 2.6. Name the specific enzyme targeted by metyrapone in the glucocorticoid biosynthesis. (05 marks)
- 2.7. Elaborate how inhibiting the enzyme mentioned in 2.6 impacts the hypothalamic-pituitary-adrenal (HPA) axis. (15 marks)
- 3.
- 3.1. State three differences between type 1 and type 2 diabetes. (15 marks)
- 3.2. Classify the different types of insulin based on their onset, peak, and duration of action. Provide one example for each type. (20 marks)
- 3.3. Discuss hypoglycemia as a side effect of insulin therapy, highlighting its symptoms, management, and prevention strategies. (20 marks)
- 3.4. Name three sulfonylureas used in the management of diabetes. (10 marks)
- 3.5. Briefly describe the mechanism of action of sulfonylureas. (25 marks)
- 3.6. List three adverse drug reactions of sulfonylureas. (10 marks)

PART B

- 4.
- 4.1. Outline the mechanism of action of beta-lactam antibiotics. (10 marks)
- 4.2. Mention three disadvantages of penicillin G (benzyl penicillin). (20 marks)
- 4.3. Briefly explain the drug interactions and contraindications of penicillin. (30 marks)
- 4.4. List four generations of cephalosporins and mention one indication and one drug for each generation. (20 marks)
- 4.5. Briefly explain the mechanism of action of vancomycin. (20 marks)

5. Bronchodilators can produce rapid relief of bronchoconstriction.
- 5.1. Briefly describe the mechanism of action of β -adrenoceptor agonists. (10 marks)
- 5.2. List two types of β -adrenoceptor agonists and mention one drug and three disadvantages for each type. (30 marks)
- 5.3. Mention the mechanism of action of theophylline. (10 marks)
- 5.4. List five adverse effects associated with theophylline. (20 marks)
- 5.5. State the first line drug for chronic obstructive pulmonary disease and briefly describe its mechanism of action. (30 marks)

6.

- 6.1. Heparin is one of the main drugs used as an anticoagulant.
- 6.1.1. Briefly describe the mechanism of action of heparin. (20 marks)
- 6.1.2. Briefly describe the pharmacokinetics of heparin. (30 marks)
- 6.2. Briefly describe the mechanism of action of warfarin. (25 marks)
- 6.3. List three examples for fibrinolytics. (15 marks)
- 6.4. Mention two examples for hematinic agents used in the treatment of anemia. (10 marks)

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