

KISII UNIVERSITY
SPECIAL EXAMINATIONS
BACHELOR OF SCIENCE IN PUBLIC HEALTH
PHES 409: PHARMACOLOGY AND THERAPEUTICS (B)

TIME: 3 HOURS

SECTION A: SHORT ANSWER QUESTIONS (30 MKS)

ANSWER ALL QUESTIONS

- 1) Describe the mechanism of antibacterial action of beta-lactam antibiotics. (3mks)
- 2) Outline any three main steps in viral replication that are targets for antiviral drug action. (3mks)
- 3) Identify two anticancer drugs that are cell cycle-specific and explain their mechanism of action. (3mks)
- 4) What are the major phase I and phase II metabolic reactions. (3mks)
- 5) Explain the term hepatic enzyme induction and name two drugs that cause enzyme induction. (3mks)
- 6) Explain the term enzyme inhibition and name three drugs that inhibit the metabolism of other drugs. (3mks)
- 7) Identify four major classes of diuretics and state their mechanisms of action. (3mks)
- 8) Explain the terms: Volume of distribution (V_d), Clearance, Half-life and Bioavailability. (3mks)
- 9) Describe the mechanisms of action of the azole antifungal drugs. (3mks)
- 10) Identify three major classes of antimalarial drugs stating their mechanism of action. (3mks)

SECTION B: LONG ESSAY QUESTIONS

ANSWER ANY TWO QUESTIONS

- 1) a) Explain the principle of selective toxicity. (4mks)
- a) Briefly describe the mode of action of the following groups of chemotherapeutic agents and give one example in each case:
 - i. Antiplatelet agents (4mks)
 - ii. Alkylating agents (4mks)
 - iii. ACE inhibitors (4mks)

- iv. Nucleoside reverse transcriptase inhibitors (4mks)
- 2)
- a) Name two anthelmintics agents that work by causing paralysis of the worm. (2mks)
 - b) What are the disadvantages of prolonged corticosteroid therapy? (3mks)
 - c) What is it about fungal cells that is different to human cells and allows selective toxicity of antifungal drugs such as amphotericin, ketoconazole and terbinafine? (3 marks)
 - d) Explain why cancer chemotherapy is not always successful. (4 marks)
 - e) Discuss the problem of bacterial drug resistance and how it arises. (8 marks)
- 3) Discuss the relationship and importance of pharmacokinetics to pharmacodynamics in clinical pharmacology. (20mks)
- 4) Outline the advantages and disadvantages of the following routes of drug administration.
- a) Oral route. (4mks)
 - b) Sublingual route. (4mks)
 - c) Intravenous route. (4mks)
 - d) Intramuscular route. (4mks)