



MACHAKOS UNIVERSITY

University Examinations for 2021/2022 Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF HEALTH SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF SCIENCE (PUBLIC HEALTH)

HPH-406: INTRODUCTION TO PHARMACOLOGY

DATE: 29/8/2022

TIME:8.30-10.30

AM

INSTRUCTIONS:

This paper consists of two sections A and B

SECTION A

Specific Instructions

- This section has one question
- The question is compulsory
- The question is 30 marks

QUESTION ONE (30 MARKS)

- a) Define the following terms in drug use: (4 marks)
- Pharmacognosy
 - Loading dose
 - Toxicology
 - Therapeutic window
- b) Identify sources of the following drugs: (3 marks)
- Digoxin
 - Streptomycin
 - Magnesium sulfate
 - Insulin
 - Paracetamol

- vi. Human Growth Hormone
- c) Explain factors that modify dosage and effectiveness of drugs. (4 marks)
- d) Briefly explain phase one reactions in drug metabolism (3 marks)
- e) Categorize with examples, the various forms of adverse drug reactions (4 marks)
- f) Chlorpheniramine is an antihistamine in the Kenya's standard drug list commonly known as piriton, giving other two examples, explain this nomenclature of drugs (3 marks)
- g) Outline with examples for each, the classes of antibacterial agents (3 marks)
- h) Explain the quantal dose effect in drugs pharmacodynamics (3 marks)
- i) Explain the processes of order of kinetics of drugs determining the pharmacokinetic drug behavior (3 marks)

SECTION B:

Specific Instructions

- **This section has four (4) questions**
- **Answer any two (2) questions**
- **Each question is 20 marks**

QUESTION TWO (20 MARKS)

- a) Describe the receptor and non-receptor mechanisms of drugs. (10 marks)
- b) The World Health Organization Traditional Medicine strategy 2014-2023 responds to the increasing global demand for Traditional Medicine /complementary medicine. Discuss the challenges faced by World Health Organization member states in regulation of Traditional Medicine /Complementary and Alternative Medicine practice. (10 marks)

QUESTION THREE (20 MARKS)

- a) Caution should be taken in drug use for patients with chronic cardiac failure.
- i. Discuss the above statement (4 marks)
- ii. Explain other forms of drug excretion (6 marks)
- b) Fungal infections are prevalent in immunosuppressed patients. Fluconazole is efficacious against most of these infections.
- i. Classify fluconazole (1 mark)
- ii. Explain its mechanism of action (4 marks)
- iii. State contraindications of fluconazole (2 marks)
- iv. Outline its side effects (2 marks)

- v. State possible drug interactions (1 mark)

QUESTION FOUR (20 MARKS)

- a) Conjugation reactions are paramount in drug metabolism. Explain the types of conjugation giving relevant examples. (10 marks)
- b) Cotrimoxazole is a fixed dose combination that is proven to be more efficacious than individual drugs it contains. Explain this mechanism of drug use (10 marks)

QUESTION FIVE (20 MARKS)

- a) Mepacrine concentration is likely to reach toxic levels with chronic administration. Discuss this statement in view of drug distribution and other factors affecting distribution of drugs. (10 marks)
- b) A 35-year-old female patient X is recently diagnosed with active pulmonary tuberculosis and started on treatment. She strictly observes her family planning method but she conceives. Discuss possible interactions in this case in addition to other similar drug interactions. (10 marks)