



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF HEALTH SCIENCES**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
IN PUBLIC HEALTH**

4th YEAR 1ST SEMESTER 2023/2024 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: HCB 1405

COURSE TITLE: ENVIRONMENTAL TOXICOLOGY

DATE: STREAM: (BSc. Env. Hlth)

EXAM SESSION:

TIME: 2 HOURS

Instructions:

- 1. Answer ALL questions in Section A and ANY other TWO questions in Section B**
- 2. Candidates are advised not to write on Question Paper.**

Candidates must hand in the Answer Booklet to the Invigilator while in the Examination Room

SECTION A [30 MARKS]

Answer ALL questions from this Section.

Question one.

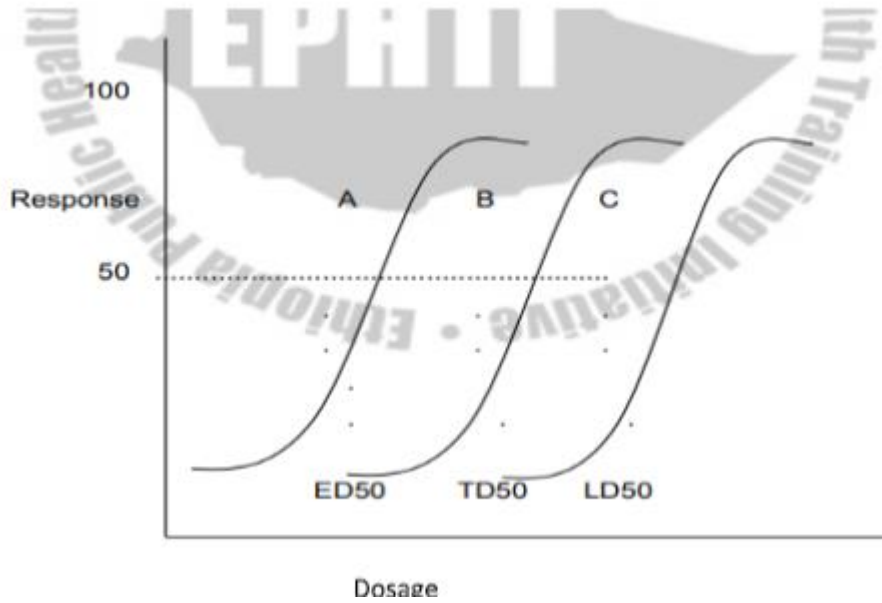
- a) Define the following terms as used in toxicology. (6marks)
 - i. Toxin
 - ii. Poison
 - iii. Toxicity
- b) Differentiate between toxicodynamics and toxicokinetics as fundamental principles of toxicology (6 marks)
- c) What is the main problem with the organophosphate insecticides? (6 Marks)
- d) What is forensic toxicology and name at least 4 samples used during the forensic toxicology? (6 marks)
- e) Describe the following types of toxicity. (6 marks)
 - i. Acute toxicity
 - ii. Sub-chronic toxicity
 - iii. Chronic toxicity

Question 2

- a) Define Occupational toxicology and discuss its 3 main objectives. (10 marks)
- b) Discuss the exposure pathways through which toxic chemicals get into the human body. (10 marks)

Question 3

- a) The dose and response relationship describes how the effect of a substance on a living organism changes as the amount of the substance (the dose) increases or decreases. Discuss the following from the graph: (10 marks)
 - Median lethal dose (LD50)
 - Median effective dose (ED50)
 - Median toxic dose (TD50)



b) List poison prevention and control strategies (10 marks)

Question 4

- a) What are the commonalities and differences between human toxicology and environmental toxicology? (10 marks)
- b) Describe mode of action of organophosphate insecticides to the human body. (10 marks)

Question 5

- a) Discuss 4 factors that influence toxicity that are critical for assessing and managing the hazards associated with various chemicals and substances. (12 marks).
- b) Discuss processes involved in toxicokinetic phase of toxicology in human beings. (10marks)