



TECHNICAL UNIVERSITY OF MOMBASA
SCHOOL OF APPLIED AND HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENT AND HEALTH SCIENCES
UNIVERSITY EXAMINATION FOR:
DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL HEALTH
BSEH 21S Y4S2

AEH 4403: ENVIRONMENTAL TOXICOLOGY

SPECIAL/SUPPLEMENTARY EXAMINATION (Paper 2)

SERIES: NOVEMBER 2024

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination

-Answer Booklet, Examination pass and student ID

This paper consists of FIVE questions

Mobile phones are not allowed in the examination room

Do not write on the question paper

SECTION A (Answer all the questions)

QUESTION ONE (30 marks)

- a) Define the following terms as used in toxicology **(4 marks)**.
 - i. Toxin
 - ii. Venom
 - iii. Toxicosis
 - iv. Xenobiotic
- b) Name **FOUR** types of pesticides and for each state a function **(4 Marks)**
- c) Briefly explain the various categories of toxins that we encounter in our life **(5 Marks)**
 - i. What do the following terms **LD50 and ED50** signify?

- ii. Drug Q has an ED₅₀ of 20mg/Kg in humans and the LD₅₀ is 100mg/Kg. Drug Z has an ED₅₀ of 10 mg/Kg, and the LD₅₀ is 20mg/Kg. Which drug is safer **(4marks)**
- d) With examples, distinguish between acute toxicity and chronic toxicity **(5 marks)**
- e) Give **ONE** functions for each of the following International bodies and authorities listed below **(6 marks)**
 - i. FDA
 - ii. ICH
 - iii. OECD

SECTION B (Answer only TWO questions)

QUESTION TWO (20 Marks)

- a) Explain the difference between toxicokinetics and toxicodynamics and why toxicokinetics is useful **(8 marks)**
- b) Briefly explain how biological systems protect themselves against adverse effects of various toxicants **(6 marks)**
- c) Identify SIX disadvantages of the extensive use of pesticides **(6 marks)**

QUESTION THREE (20 Marks)

- a) Briefly discuss the following branches of toxicology **(12 marks)**
 - i. Mechanistic
 - ii. Forensic
 - iii. Descriptive
 - iv. Regulatory
- b) Describe main contributions of the following people in the field of toxicology **(8 marks)**
 - i. Jean Star (1850)
 - ii. Pedanius Dioscorides (1775)
 - iii. Hohenheim-Paracelsus (1493-1541)
 - iv. J B (Mattié Joseph Benaventura) Orfila

QUESTION FOUR (20 Marks)

PAPER II

Write down short notes on Arsenic exposure under the following headings:

- a) Sources of exposure (**6 marks**)
- b) Signs and symptoms (**6 marks**)
- c) Steps to prevent poisoning (**8 marks**)

QUESTION FIVE (20 Marks)

Discuss different factors that influence toxicity effects of chemicals to humans (**20 marks**)