

CHUKA



UNIVERSITY

UNIVERSITY EXAMINATIONS

**EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN
BIOMEDICAL TECHNOLOGY**

BMET 423: TOXICOLOGY ENVIRONMENTAL PHYSIOLOGY

STREAMS: BSC BMET

TIME: 2 HOURS

DAY/DATE: MONDAY 16/12/2024

11.30 A.M – 1.30 P.M.

INSTRUCTIONS:

- Answer question **ONE (COMPULSORY)** and any other **TWO** questions.
- Sketch diagrams may be used whenever they may help to illustrate your answer.
- Do **NOT** write anything on the question paper.
- This is a closed book exam. **No** reference materials are allowed in the examination room.
- There will be **No** use of mobile phones or any other unauthorized materials.
- Write your answers legibly and use your time wisely.

QUESTION 1 (COMPULSORY) (30 MARKS)

- (a) Highlight FIVE medical importance of xenobiotic detoxification. (5 marks)
- (b) Briefly describe the possible ways through which global warming could change the climate and ecology of our planet and alter toxic effects of chemicals. (3 marks)
- (c) Explain THREE techniques used to prevent air pollution. (6 marks)

- (d) Explain THREE applications of pollution biomarkers in healthcare. (6 marks)
- (e) Briefly describe 'dose-response' as applied in toxicology. (4 marks)
- (f) Describe the role of a forensic toxicologist. (6 marks)

QUESTION 2 (20 MARKS)

- (a) By use of appropriate examples, discuss the beneficial applications of toxins in medicine. (10 marks)
- (b) Explain the stages of intoxication. (10 marks)

QUESTION 3 (20 MARKS)

- (a) Explain with specific examples FIVE possible outcomes of biotransformation of xenobiotics. (10 marks)
- (b) Describe FIVE biochemical tests performed in a general clinical toxicology laboratory. (10 marks)

QUESTION 4 (20 MARKS)

- (a) Describe the primary action mechanism of organophosphates toxicity. (6 marks)

- (b) Outline FOUR factors determining the rate of distribution of chemicals in the body. (4 marks)
- (c) Outline FIVE air pollutants and explain their effects on human health. (10 marks)
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