CHUKA   **UNIVERSITY**

UNIVERSITY EXAMINATIONS

EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF BIOMEDICAL TECHNOLOGY

BMET 423: TOXICOLOGY ENVIRONMENTAL PHYSIOLOGY

STREAMS: BMET   **TIME: 2 HOURS**

DAY/DATE: MONDAY 22/03/2021   **11.30 A.M. – 1.30 P.M.**

INSTRUCTIONS:
- **Answer question ONE and any other TWO questions.**

QUESTIONS

QUESTION 1 (COMPULSORY) (30 MARKS)

(a)   Using specific examples, differentiate between a toxicant and a toxin.   (4 marks)

(b)   Explain 'dose-response' as used in toxicology.   (2 marks)

(c)   Explain 3 techniques used to prevent air pollution.   (6 marks)

(d)   Giving examples, differentiate between point and nonpoint source of water pollution.
                                                                                  (4 marks)
(e)   Explain 3 applications of pollution biomarkers in healthcare.   (6 marks)

(f)   Highlight 4 targets for the toxicodynamic actions of toxic chemicals.   (4 marks)

(g)   Outline 4 factors determining the rate of distribution of chemical in the body. (4 marks)

QUESTION 2 (20 MARKS)

(a)   Highlight 10 steps that should be followed in selecting appropriate pollution biomarker.
                                                                                  (10 marks)

(b)   Highlight the strategies employed in poison prevention and control.   (10 marks)

QUESTION 3 (20 MARKS)

(a)   Discuss 3 key phase I reactions indicating the enzymes involved and their localization.

(10 marks)

(b)   State and explain 5 air pollutants and effects on human health.   (10 marks)

QUESTION 4 (20 MARKS)

(a)   (i)   Explain the meaning of 'potentiation effect' of a xenobiotic.   (2 marks)

        (ii)   Describe classification of toxicology based on research methodology. (8 marks)

(b)   Describe the detoxification reactions involving conjugation.   (10 marks)