



“Investing in Africa’s future”

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

NANE 207: BIOTECHNOLOGY AND THE ENVIRONMENT

END OF SECOND SEMESTER SUPPLEMENTARY EXAMINATIONS

JULY 2022

LECTURER: MR. TABARIRA J.

DURATION: 3 HOURS

INSTRUCTIONS

Answer any **Four** questions

All questions carry equal marks (25).

DO NOT repeat material.

Write legibly.

Credit will be awarded for logical, systematic and neat presentations

Question 1

- a. Provide a detailed discussion of the factors influencing the effectiveness of microorganisms in bio-waste decomposition. [10]
- b. Outline the major environmental challenges being experienced in your community and suggest appropriate solutions [15]

Question 2

Write brief notes on the following:

- a. Mechanisms of minimizing environmental contamination, [5]
- b. Contribution of Industrial revolution to environmental pollution, [5]
- c. The role of microorganisms in the food processing industry, [5]
- d. Attributes of an ideal biomarker, and [5]
- e. Application of biosensors. [5]

Question 3

- a. Provide a detailed account of the environmental and food security challenges being faced by your local community. [10]
- b. Discuss in support of the notion that, GMO technology will not ensure global food security [15]

Question 4

- a. Give a critical analysis of the relationship between environmental preservation and food security. [15]
- b. Write brief notes on:
 - i. Bio-waste is a resource, [4]
 - ii. Advantages of Bio-pesticides, and [3]
 - iii. Biotic components of the environment. [3]

Question 5

- a. Define the term pollutant, and provide a detailed discussion of the four properties of pollutants [10]
- b. Discuss the critical role(s) microorganisms play in the environment [15]

Question 6

- a. Demonstrate your understanding of the concept 'clean' technology as a pollution control strategy. [5]

- b. Justify why vesicular arbuscular mycorrhiza (VAM) is a highly recommended bio fertilizer in organic farming systems. **[10]**
- c. Outline the major causes of food insecurity in developing economies, **[10]**

End of Examination Paper