



**FACULTY OF SCIENCE AND TECHNOLOGY**  
**END OF SEMESTER EXAMINATIONS - MAY 2024/2025**

**PROGRAMME: BSEM**

**YEAR/SEM: YEAR 1/SEMESTER 1**

**COURSE CODE: BSE1105**

**NAME: FUNDAMENTALS OF ECOLOGY**

**DATE: 2025-08-04**

**TIME: 2:00-5:00PM**

**INSTRUCTIONS TO CANDIDATES:**

1. Read the instructions very carefully
2. The time allowed for this examination is STRICTLY three hours
3. Read each question carefully before you attempt and allocate your time equally between all the Sections
4. Write clearly and legibly. Illegible handwriting cannot be marked
5. Number the questions you have attempted
6. Use of appropriate workplace examples to illustrate your answers will earn you bonus marks
7. Any examination malpractice detected will lead to automatic disqualification.

**DO NOT WRITE ANYTHING ON THE QUESTION PAPER**

## **Section A Answer all questions in this section (compulsory)**

### **Question 1:**

- a) Differentiate between population ecology and community ecology. (5 marks) b) Briefly describe any two practical applications of ecology in environmental management. (5 marks) c) Identify three biotic and three abiotic components. (5 marks) d) Describe how one abiotic factor influences the structure of the ecosystem. (5 marks) e) Construct a simple food web for a freshwater ecosystem. (5 marks) f) What would be the ecological consequence of removing a top predator from this system? (5 marks) g) Discuss the role of decomposers in an ecosystem. (5 marks) h) How do decomposers contribute to nutrient cycling? (5 marks)

## **Section B Attempt only three (3) questions from this section**

### **Question 1:**

- a) Explain five human activities that can disrupt ecological balance. (10 marks)  
b) Suggest five strategies for restoring or maintaining ecological stability in degraded ecosystems. (10 marks)

### **Question 2:**

Using diagrams, write short notes on the following; (20 marks) i) Pyramid of numbers ii) Energy pyramid iii) Mass pyramid

### **Question 3:**

- a) What is biodiversity conservation (4 marks). b) How effective is ex-situ conservation over in-situ as approaches of preserving endangered species (8 marks). c) Discuss the threats to biodiversity conservation in Africa (8 marks).

### **Question 4:**

- a) Define ecosystem resilience. (2 marks) b) Explain the factors that contribute to an ecosystem's ability to withstand and recover from disturbances. (12 marks) c) How do these factors interact to determine overall resilience? (06 marks)

### **Question 5:**

- a) With the aid of an illustration, describe the nitrogen cycle. (10 marks) b) How do agricultural practices affect the nitrogen cycle? (10 marks)

### **Question 6:**

- a) Discuss the biological and environmental factors that drive ecological succession. (12 marks) b) Use examples to explain how pioneer species contribute to the early stages of succession. (08 marks)