



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCE

DEPARTMENT OF FOREST RESOURCES AND WILDLIFE MANAGEMENT

PRINCIPLES OF ECOLOGY (EFW 1204)

Main Examination Paper

October 2024

This examination paper consists of 2 pages

Time Allowed: 3 hours

Total Marks: 100

Special Requirements: None

Examiner's Name: Miss B Ngwenya

INSTRUCTIONS

1. Answer **QUESTION ONE** and any **THREE** others
2. Each question carries 25 marks

MARK ALLOCATION

QUESTION	MARKS
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
TOTAL	100

1. (a) Describe the biological hierarchy in ecological studies from individuals to the biosphere. **[20 marks]**
(b) Distinguish between a fundamental niche and a realized niche. **[5marks]**
2. Citing specific examples, explain the outcomes of the following interspecific competitions:
(a) Competitive Exclusion **[10 marks]**
(b) Coexistence. **[15 marks]**
3. (a) Describe and illustrate exponential and logistic population growth. **[10 marks]**
(b) Discuss how R- strategists differ from K-strategists. **[15 marks]**
4. Using named examples of species, describe the following kinds of interactions of organisms in an ecosystem
(a) Symbiosis **[7 marks]**
(b) Parasitism **[6 marks]**
(c) Commensalism **[3 marks]**
(d) Amensalism **[3 marks]**
(e) Mutualism **[6 marks]**
5. Describe the Carbon cycle and discuss how human activities have modified it.
6. (a) Describe the various trophic levels found in a savanna biome. **[10 marks]**
(b) Discuss the differences among ecological pyramid of numbers, pyramid of energy and pyramid of biomass. **[15 marks]**