NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCE

DEPARTMENT OF FOREST RESOURCES AND WILDLIFE MANAGEMENT

ANIMAL ECOLOGY (EFW 4103)

Special Examination Paper

March 2025

This examination paper consists of 2 pages

Time Allowed:	3 hours
Total Marks:	100
Special Requirements:	None
Examiner's Name:	Mr M. Mawanza
External Examiner:	Prof. E. Chivandi

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) Outline Gause's "competitive exclusion principle". **[5 marks]**

   (b) Using named examples of co-existing animal species, discuss the various ways by which they minimize overlaps in resource use. **[20 marks]**

2. Explain the "ecological niche concept" and discuss its applications in animal species conservation and management of multispecies game farms.

3. (a) Define the terms 'interspecific' and 'intraspecific' competition and give an example for each case. **[5 marks]**

   (b) Discuss the impacts of intraspecific and interspecific competition on wildlife population Dynamics. **[20 marks]**

4. Discuss the ecological impacts on animal communities of operating an open cast coal mine near a game reserve.

5. Discuss the applications and limitations of 'the theory of island biogeography' in the designing of large transfrontier and smaller isolated national game parks for the conservation of wildlife.

6. Using well labelled graphs, illustrate the following types of functional responses exhibited by predators as they capture their prey and explain the significance of each type as it relates to the regulation of the prey population:

   (a) Type I **[7 marks]**

   (b) Type II **[8 marks]**

   (c) Type III **[10 marks]**