



NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCE

DEPARTMENT OF FOREST RESOURCES AND WILDLIFE MANAGEMENT

ENTOMOLOGY FOR FOREST AND WILDLIFE (EFW 4208)

Main 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. Mwanza
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 new outbreak of an unidentified pest has been reported in your plantation forest. As a resident forest entomologist, describe the necessary logical entomological procedures you would employ in attempting to bring an immediate and long-term management solution to this pest problem.
2. Using named examples of insect species, explain any five evolutionary adaptations which have made them the most successful group of animals on earth.
3. With reference to named insect species, describe the nature and effect of damage caused by insect feeding on the following plant parts:

(a) seeds and fruits	[5 marks]
(b) flowers and buds	[5 marks]
(c) stems	[5 marks]
(d) roots	[5 marks]
(e) leaves.	[5 marks]
4. Citing examples of species, explain why insects should be given a special consideration in the conservation of biodiversity in both natural and agro-ecosystems?
5. (a) Briefly outline the diurnal activity pattern, breeding and resting sites preferred by the tsetsefly, *Glossina morsitans*. **[5 marks]**

 (b) Describe the methods used to manage tsetse fly population indicating how knowledge of its biology, ecology and behaviour has contributed to the development and application of such management strategies. **[15 marks]**
6. (a) Describe the following methods which are employed in biological control programmes of pests or weeds using insect agents:

(i) conservation	[5 marks]
(ii) classical biological control	[7 marks]
(iii) augmentation.	[4 marks]

 (b) What are the merits and demerits of using biological control agents in the management of insect pests of trees in natural and commercial tree stands? **[9 marks]**