



**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**FACULTY OF ENVIRONMENTAL SCIENCE**  
**DEPARTMENT OF FOREST RESOURCES AND WILDLIFE MANAGEMENT**  
**RESEARCH METHODS (EFW 5204)**

**MSc in Eco-Tourism and Biodiversity Conservation – Semester 1 (9th intake) Examination Paper**  
**December 2024**

This examination paper consists of 2 pages

Time Allowed: 3 hours  
Total Marks: 100  
Special Requirements: **Statistical tables**  
Examiner's Name: Prof D. Mlambo  
External Examiner: Prof. E. Chivandi

**INSTRUCTIONS**

1. Answer **QUESTION 1** and any **THREE** others
2. Each question carries 25 marks
3. Use of calculators is permissible

**MARK ALLOCATION**

<b>QUESTION</b>	<b>MARKS</b>
1.	25
2.	25
3.	25
4.	25
5.	25
6.	25
<b>TOTAL</b>	<b>100</b>

1. Citing specific examples, describe the key elements of a scientific research process.
2. There are reports that elephants in Hwange National Park are damaging mopane woodlands close to water points. You are required to investigate into this problem by conducting a scientific inquiry. Explain how you would collect the data to test the hypothesis that vegetation type and proximity to water points affects on the density of trees damaged by elephants.
3. Data in Table 2 show the number of respondents in a questionnaire survey who expressed willingness or unwillingness to conserve elephants in three communities that were stratified according to distance from Gonarezhou National Park.

Table 2. Number of respondents in three communities who expressed willingness or unwillingness to conserve elephants.

Willingness to conserve elephants	Distance from park boundary		
	1-5 km (Near)	10-20 km (Intermediate)	30-40 km (Far)
Yes	10	30	40
No	40	30	10

- (a) Using data in Table 2, suggest an appropriate topic, research question and hypothesis. **[8 marks]**
- (b) Test the hypothesis you have suggested in 3a using the most suitable statistical test. **[17 marks]**
4. Describe how the problems of confounding and pseudo-replication in scientific research lead to flawed designs and false conclusions.
5. Discuss the advantages and disadvantages of using the following sampling techniques in data collection:
  - (a) stratified random sampling. **[9 marks]**
  - (b) cluster sampling. **[8 marks]**
  - (c) systematic sampling. **[8 marks]**
6. Evaluate the usefulness of using a questionnaire approach when conducting research in ecotourism and biodiversity conservation.