NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF ENVIRONMENTAL SCIENCE

DEPARTMENT OF GEOSPATIAL SCIENCE

GEOGRAPHICAL INFORMATION SYSTEMS

(EGR 1102)

Main Examination Paper

December 2024

This Examination Paper consists of 2 pages

Time Allowed:	3 hours
Total Marks:	100
Special Requirements:	Nil
Internal Examiner:	Mr A Chirima
External Examiner:	Dr M. Shekede

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. Write short notes on the following GIS terms:

    (a) Coordinate system.   **[5 marks]**

    (b) Azimuthal projection.   **[5 marks]**

    (c) Cylindrical.   **[5 marks]**

    (d) Longitudes and Latitudes.   **[5 marks]**

    (e) Conical projection.   **[5 marks]**

2(a) Give a detailed explanation of how GIS data is modelled.   **[5 marks]**

   (b) Outline the advantages and disadvantages of each model.   **[20 marks]**

3(a) Outline the brief history of GIS.   **[5 marks]**

   (b) Define the term "metadata".   **[5 marks]**

   (c) Discuss the issues that are addressed by metadata.   **[15 marks]**

4(a) Describe the major components of a functional GIS.   **[10 marks]**

   (b) Define the terms "Geographic Information System", "Geographic Information Science" and "Geographic Information Service".   **[6 marks]**

   (c) Give a detailed explanation of a GIS subsystems.   **[9 marks]**

5(a) Define the term "Topology"?   **[7 marks]**

   (b) What are the Advantages and disadvantages of topology in GIS?   **[10 marks]**

   (c) Describe overlay operations in GIS.   **[8 marks]**

6. Give a detailed assessment of how a GIS system can benefit the municipality of Bulawayo **OR** any institution of your choice.