



ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS DEVELOPMENT

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

DIPLOMA IN GEOGRAPHICAL INFORMATION SYSTEM

COURSE CODE : GISRS 114
COURSE TITLE : Geographic Data Models
SPECIAL REQUIREMENTS : None
DURATION : 2 Hours
LEVEL : 2.2
DATE : 2025

29 JUL 2025

INSTRUCTIONS TO CANDIDATES:

- Section A: Question 1 is compulsory (40 marks).*
- Section B: Answer any 3 questions from Questions 2 to 6 (20 marks each).*

Overall Total Marks: 100 Marks

ADDITIONAL MATERIALS

- *Answer Booklet.*

Section A: Compulsory Question (40 Marks)

Question 1: Raster and Vector data models.

a. Define each data model and describe its key characteristics.

[10 marks]

b. Discuss their respective advantages, limitations, and applications in GIS.

[20 marks]

c. Use diagrams or examples to illustrate your points.

[10 marks]

Section B: Optional Questions (Answer Any 3; Each Question Carries 20 Marks)

Question 2:

a. Describe the main spatial data components of a geographic data model.

[7 marks]

b. Describe the main attribute components of a geographic data model.

[7 marks]

c. Discuss the importance of Geographic Data Models, provide examples of their use in mapping and analysis.

[6 marks]

Question 3

Discuss using examples relevant to Southern Africa.

a. Advantages of Vector Data Models

[10 Marks]

b. Limitations of Vector Data Models

[10 Marks]

Question 4

Object-based Data Models

a. Describe the object-based data model and how it differs from the traditional vector data model.

[12 Marks]

b. Explain its advantages and applications in GIS projects.

[8 Marks]

Question 5

a. Define metadata and its components in GIS.

[7 marks]

b. Discuss the role of metadata in ensuring data quality and usability.

[7 marks]

c. Provide examples of how metadata supports effective data sharing and analysis.

[6 marks]

Question 6

a. Describe the process of converting raster data to vector data and vice versa.

[10 marks]

b. Highlight the challenges associated with this conversion and their implications for spatial analysis.

[10 marks]

****END OF EXAMINATION****

1/ami