ZIMBABWE EZEKIEL GUTI UNIVERSITY

COLLEGE OF LIFELONG LEARNING

## EXAMINATION PAPER

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| **MODULE CODE** | : | GISRS111 |
| **MODULE TITLE** | : | Introduction to GIS and Representation of Geographic Phenomena |
| **DURATION** | : | 2 Hours |
| **LEVEL** | : | 1.1 |
| **DATE** | : | |

12 NOV 2025

**INSTRUCTIONS TO CANDIDATES:**

1. No cell phones are allowed in the examination venue.
2. Use of silent, non-programmable calculators is allowed
3. Answer **Question 1** and any other **THREE** in Section B.
4. Begin each question on a new page.
5. The number of marks for each question or part question is shown in brackets [ ]
6. Show all workings, where applicable.

**Section A: Compulsory Question (40 Marks)**

**Question 1:**

Discuss the fundamental concepts and applications of GIS. Your answer should address:

a. The key components of a Geographic Information System. **(10 marks)**

b. Differences between raster and vector data representation. **(10 marks)**

c. Applications of GIS in Zimbabwean sectors such as agriculture, mining, and disaster management. **(10 marks)**

d. Explain how GIS supports spatial decision-making using two practical examples. **(10 marks)**

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

**Question 2:**

a. Define spatial and non-spatial data and give examples of each. **(8 marks)**

b. Explain how GIS handles topological relationships (e.g., adjacency, connectivity). **(6 marks)**

c. Discuss two limitations of GIS when applied in developing countries. **(6 marks)**

**Question 3:**

a. Describe the concept of layers and thematic mapping in GIS. **(8 marks)**

b. Explain how geographic phenomena such as point, line, and polygon features are represented in a GIS environment. **(6 marks)**

c. Identify challenges in representing complex real-world features in GIS. **(6 marks)**

**Question 4:**

a. Distinguish between spatial resolution, attribute resolution, and temporal resolution. **(8 marks)**

b. Explain why scale is important in GIS mapping. **(6 marks)**

c. Provide two examples where incorrect scale interpretation can lead to decision-making errors. **(6 marks)**

**Question 5:**

a. Discuss the role of metadata in GIS projects. **(8 marks)**

b. Explain the importance of data quality and identify four quality elements. **(6 marks)**

c. Describe two methods of checking data accuracy. **(6 marks)**

**Question 6:**

a. Explain the concept of spatial relationships with examples. **(8 marks)**

b. Describe two types of map projections commonly used in Zimbabwe. **(6 marks)**

c. State two common sources of GIS data in Southern Africa. **(6 marks)**

******END OF EXAMINATION******

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