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 113
COURSE TITLE	: GEOREFERENCING AND COORDINATE SYSTEMS
SPECIAL REQUIREMENTS	: None
DURATION	: 2 Hours
LEVEL	: 2.2
DATE	28 JUL 2025 : 2025

INSTRUCTIONS TO CANDIDATES:

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1. ***Section A**: Question 1 is **compulsory** (40 marks).*

2. ***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: Georeferencing and its importance in GIS.

a. Define georeferencing and discuss the process of georeferencing, including the role of ground control points (GCPs) and coordinate systems.

[15 marks]

b. Explain the challenges associated with georeferencing and propose solutions to address them.

[10 marks]

c. Provide examples of how georeferencing is applied in real-world scenarios, such as integrating historical maps or aligning satellite imagery.

[15 marks]

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

Question 2:

a. Differentiate between geographic and projected coordinate systems. Discuss how each system represents the Earth's surface.

[16 marks]

b. Explain the effects of map projections on data accuracy and visualization using specific examples.

[4 marks]

Question 3

a. Describe the UTM coordinate system and its design.

[10 Marks]

b. Highlight the advantages and limitations of using the UTM system for spatial analysis. [10 Marks]

Question 4

Discuss the significance of map projections in GIS.

a. Identify two commonly used map projections and their characteristics.
[14 Marks]

b. Explain how distortions in distance, area, or shape can affect spatial decision-making. [6 Marks]

Question 5

a. Explain the steps involved in transforming data from one coordinate system to another. [10 marks]

b. Discuss the importance of datum transformations in maintaining spatial data accuracy. [10 marks]

Question 6

a. Provide examples of how georeferencing is used in specific industries, such as urban planning, agriculture, or disaster management. Discuss the benefits of accurate georeferencing in these applications.
[15 marks]

b. Highlight the consequences of poor georeferencing practices.
[5 marks]

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