



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 115
COURSE TITLE : DATA COLLECTION AND DATA SOURCES
SPECIAL REQUIREMENTS : None
DURATION : 2 Hours
LEVEL : 1.1
DATE : 2025

30 JUL 2025

INSTRUCTIONS TO CANDIDATES:

Answer ALL questions

Question 1: Overview of Data Collection in GIS

- (a) Define the two main types of spatial data used in GIS. Provide examples of each. **(5 marks)**
- (b) Discuss the ethical considerations that need to be taken into account when collecting GIS data. **(5 marks)**
- (c) Explain the difference between primary and secondary data sources in GIS. **(5 marks)**

Question 2: Field Data Collection Methods

- (a) Describe the basic principles of surveying for GIS data collection. **(5 marks)**
- (b) Differentiate between manual and automated data collection methods. **(5 marks)**
- (c) For a land survey project, outline the steps you would take using a handheld GPS to collect data points. **(10 marks)**

Question 3: GPS and Remote Sensing Techniques

- (a) Explain how GPS works and name at least two factors that can affect the accuracy of GPS data. **(5 marks)**
- (b) Compare GPS with one other Global Navigation Satellite System (GNSS), such as GLONASS or Galileo. **(5 marks)**
- (c) Describe the key differences between multispectral and hyperspectral sensors in remote sensing. **(5 marks)**

Question 4: Remote Sensing and Drones in GIS

- (a) Discuss two applications of remote sensing in GIS. **(5 marks)**
- (b) What are the advantages of using drones for spatial data collection in comparison to traditional aerial surveys? **(5 marks)**

(c) Identify and explain two legal considerations when using drones for data collection. (5 marks)

Question 5: Data Quality, Open Data, and Crowdsourcing

(a) Define the following terms in relation to GIS data:

i. Accuracy

ii. Precision

iii. Resolution

(5 marks)

(5 marks)

(b) How can crowdsourced data be used in GIS, and what challenges are associated with its use? (5 marks)

(c) Using a practical example, describe how you would verify the quality of data collected from an open-source platform like OpenStreetMap. (5 marks)

Question 6: Data Preprocessing and Integration

(a) Explain the purpose of georeferencing in GIS. (5 marks)

(b) Describe two preprocessing techniques for handling missing or inaccurate GIS data. (5 marks)

(c) Discuss how you would integrate data from multiple sources (e.g., remote sensing, GPS, and secondary data) in a GIS project. (10 marks)

****END OF EXAMINATION****

1/ am