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)**

(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******