



ZIMBABWE EZEKIEL GUTI UNIVERSITY

COLLEGE OF LIFELONG LEARNING

EXAMINATION PAPER

MODULE CODE : GISRS115
MODULE TITLE : Introduction to Remote Sensing and Sensor
DURATION : 2 Hours
LEVEL : 1.1
DATE : 28 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 of remote sensing. Your response should cover:

- a. The electromagnetic spectrum and its relevance. (10 marks)
- b. Types of remote sensing platforms and sensors. (10 marks)
- c. Atmospheric and radiometric challenges in remote sensing. (10 marks)
- d. Examples of how Zimbabwe uses remote sensing for environmental management. (10 marks)

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

Question 2:

- a. Explain passive vs. active remote sensing. (8 marks)
- b. Describe characteristics of multispectral and hyperspectral imagery. (6 marks)
- c. Identify two limitations of active sensors. (6 marks)

Question 3:

- a. Explain spatial, spectral, radiometric, and temporal resolution. (8 marks)
- b. Discuss why resolution trade-offs exist. (6 marks)
- c. Provide two examples of satellites commonly used in Southern Africa. (6 marks)

Question 4:

- a. Describe sensor calibration and why it is important. (8 marks)
- b. Explain thermal remote sensing applications. (6 marks)
- c. Identify two challenges in interpreting thermal images. (6 marks)

Question 5:

- a. Discuss the concept of image enhancement. (8 marks)
- b. Explain histogram equalization and its purpose. (6 marks)
- c. State two disadvantages of using enhanced imagery for analysis. (6 marks)

Question 6:

- a. Describe airborne remote sensing. (8 marks)
- b. Explain LiDAR and its uses. (6 marks)
- c. Provide two examples of LiDAR applications in Zimbabwe. (6 marks)

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

1/0 (pm)