

EGERTON

UNIVERSITY



UNIVERSITY EXAMINATIONS  
REGULAR – NJORO CAMPUS

FIRST SEMESTER, 2025/2026 ACADEMIC YEAR

SECOND YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE  
(GEOGRAPHY), BACHELOR OF SCIENCE (GENERAL), BACHELOR OF SCIENCE  
(ENVIRONMENTAL SCIENCE), BACHELOR OF EDUCATION AND BACHELOR OF  
ARTS

GEOG 201: INTRODUCTION TO REMOTE SENSING AND GIS

STREAM: BSc. (Geog), BA, BED, BSc. (ENSci) & BSc. (Gen)

TIME: 2 HRS

EXAMINATION SESSION: JANUARY

YEAR: 2026

INSTRUCTIONS:

- (i) Answer question ONE and any other TWO questions
- (ii) Use sketch maps and diagrams whenever they serve to illustrate an answer
- (iii) Do not write on the question paper
- (iv) Show your working clearly

**Question One**

- a) Define
  - i) Remote Sensing (2 Marks)
  - ii) Geographical Information System (GIS) (2 Marks)
- b) Explain the relationship between remote sensing and GIS technologies in the management of natural resources. (4 Marks)
- c) Examine the advantages of active sensors over passive sensors in remote sensing (3 Marks)

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- d) Explain the uniqueness of GIS as compared to other Database Management Systems (DBMs). (3 Marks)
- e) Providing relevant examples, distinguish between the following:
- i) Imaging and Non-imaging sensors (4 Marks)
  - ii) Spatial and Attribute data (4 Marks)
  - iii) Geo-synchronous and Sun-synchronous satellites (4 Marks)
  - iv) System users and End users (4 Marks)

**Question Two**

Using an illustration, discuss:

- a) The flow of Electromagnetic Energy through the *Atmosphere* (10 Marks)
- b) How the Electromagnetic Energy interacts with the *Earth's surface* (10 Marks)

**Question Three**

- a) Explain the various components of GIS. (10 Marks)
- b) Examine the main functions of Geographic Information Systems (10 Marks)

**Question Four**

Citing relevant examples, discuss

- a) The *applications* of GIS in the management of natural resources (10 Marks)
- b) The *limitations* of GIS in the management of natural resources. (10 Marks)

**Question Five**

- a) 'Global wars have been the main driving force behind the development of remote sensing technology'. Discuss. (10 Marks)
  - b) Using relevant examples, discuss the various applications of remote sensing technology in management of natural resources. (10 Marks)
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