LAIKIPIA UNIVERSITY

UNIVERSITY EXAMINATIONS

FIRST SEMESTER 2025/2026 ACADEMIC YEAR

THIRD YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION (SCIENCE/ARTS)

GEOG-318: REMOTE SENSING

STREAM: ***BEd (SCIENCE/ARTS)*** ***TIME: 2 HRS***

DAY: FRIDAY [14.30 – 16.30 P.M] ***DATE: 30/01/2026***

THIS QUESTION PAPER CONSISTS OF THREE (3) PAGES

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INSTRUCTIONS:

i. Answer question **ONE** and **any** other **TWO** questions.
ii. Sketch maps and diagrams should be used whenever they serve to illustrate an answer

QUESTION ONE (30 MARKS)

a) Explain the following terms as used in remote sensing.
   i) Swath width **(2 Marks)**
   ii) Remote **(2 Marks)**
   iii) Electromagnetic energy **(2 Marks)**
   iv) Platform **(2 Marks)**
   v) Sensor **(2 Marks)**
   vi) Pixel **(2 Marks)**

b) Giving **ONE** example in each case, differentiate between the passive and active remote sensing **(6 Marks)**

c) Briefly explain the steps followed during remote sensing data acquisition. **(12 Marks)**

QUESTION TWO (20 MARKS)

a) List any **FOUR** forms of electromagnetic energy used in remote sensing in acquiring data for resource management **(4 Marks)**

b) Discuss any **FOUR** strengths and **FOUR** weakness of remote sensing technology in the management of resources. **(16 Marks)**

QUESTION THREE (20 MARKS)

a) Define the term "transmission media" as applied in remote sensing **(3 Marks)**

b) Using relevant diagrams, differentiate between "absorption zones" and "atmospheric windows" **(8 Marks)**

c) Describe the **THREE** scattering effects that occur when radiation interacts with the atmosphere. **(9 Marks)**

QUESTION FOUR (20 MARKS)

a) Explain the broad classifications of platforms used in remote sensing **(6 Marks)**

b) Giving **ONE** example in each case, differentiate between geostationary and sun-synchronous satellites. **(6 Marks)**

c) Giving relevant examples, examine any **FOUR** remote sensing image interpretation keys. **(8 Marks)**

QUESTION FIVE (20 MARKS)

a) Explain what is meant by the term digital image processing **(2 Marks)**

b) Describe the **TWO** main digital image classification techniques for land use/land cover mapping in remote sensing. **(6 Marks)**

c) Examine any **FOUR** basic operations carried out during digital image analysis. **(12 Marks)**