LAIKIPIA UNIVERSITY

UNIVERSITY EXAMINATIONS

1ST SEMESTER 2022/2023 ACADEMIC YEAR

FOURTH YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF EDUCATION (ARTS)

GEOG 418: REMOTE SENSING

STREAM: R ***TIME: 2 HRS***

DAY: TUESDAY [8.30AM – 10.30AM] ***DATE: 13/12/2022***

THIS QUESTION PAPER CONSISTS OF TWO (2) PAGES

PLEASE DO NOT OPEN UNTIL THE INVIGILATOR SAYS SO.

QUESTION ONE (Compulsory-30 marks)

a) Discuss strengths of remote sensing techniques in spatial data collection **(20 marks)**

b) Giving ONE example in each case, differentiate between imaging and non-imaging remote sensing **(10 marks)**

QUESTION TWO

Write short explanatory notes differentiating between the following:

i) Spatial and radiometric image resolutions (4 Marks)

ii) Active and passive sensors (4 Marks)

iii) Atmospheric window and absorption zones (4 Marks)

iv) Remote sensing platform and stereoscopy (4 Marks)

v) A platform and a sensor (4 Marks)

QUESTION THREE

Compare and contrast a topographic map and an aerial photograph. (20 Marks)

QUESTION FOUR

a) Discuss the application of remote sensing in smart agriculture. (10 marks)

b) The following sub-scene of an image was supplied to a client with the following header information:

Digital Image Format	Pixels/Row	Rows/Band
Run-Length Encoding	12	5

10, 20, 10, 250, 4, 10, 16, 50, 10, 65, 8, 50, 12, 66, 10, 0, 18, 86, 12, 50, 10, 58, 10, 20, 10, 2, 4, 10, 16, 48, 10, 65, 8, 50, 12, 66, 10, 254, 18, 86, 12, 80, 10, 60

i) Calculate the number of bands the client ordered. (2 Marks)

ii) Unscramble the conventional image the client ordered. (4 Marks)

iii) Structures the image in Band interleaved by Pixel (BIP) format. (4 marks)

QUESTION FIVE

Discuss the possible positive contributions and shortfalls of remote sensing techniques in the sustainable resource management Kenya. (20 Marks)