**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY**

**SCHOOL OF SPATIAL PLANNING**

**UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF SPATIAL PLANNING AND DESIGN**

**SEMESTER 2022/2023 ACADEMIC YEAR**

# CENTRE: MAIN CAMPUS

**COURSE CODE: PPB1212**

**COURSE TITLE:  REMOTE SENSING**

**EXAM VENUE:**                              **STREAM: SPATIAL PLANNING**

**DATE:**                                             **EXAM SESSION:**

**TIME: 2 HOURS**

## Instructions:

1. **Answer question 1 ( compulsory ) and ANY other 2 questions.**

2. **Candidates are advised not to write on the question paper.**

3. **Candidates must hand in their answer booklets to the invigilator while in the examination room.**Q1.

## Q1

a) Describe the properties displayed by electromagnetic energy [6 marks]
b) Explain the advantages of aerial photography compared to ground observations
[8 marks]
c) Explain the advantages of multispectral scanners over aerial photography [8 marks]
d) Examine the elements of aerial photographic interpretation [8 marks]

## Q2.

**a)** Discuss the interaction of electromagnetic energy with the tropospheric constituents
[10 marks]
**b)** Describe the process of determining terrain elevation and ocean depth by LIDAR sensors [10 marks]

## Q3.

a) Discuss indepthly fivekey properties of remote sensing [10 marks]
b) Use an illustration to precisely explain how remotely sensed data is obtained through active and passive remote sensing [10 marks]

## Q4

a) An air vessel fitted with a sensor whose focal length is 152mm, was used to acquire near vertical aerial images from a flying height of 2780m above mean sea level; if the terrain is flat located at an elevation of 500m. Compute the scale of the photographic image obtained. [10 marks]
b) From (a) above compute the area of a rectangular field in the image measuring 7.45cm by 3.33 cm. [10 marks]

## Q5.

a) Use a graphical demonstration to describe spectral reflectance of vegetation, water and dry bare soil [10 marks]
b) Use aDiagram to describe the divisions of the electromagnetic spectrum [10 marks]

**END**