



MAASAI MARA UNIVERSITY

**SUPPLEMENTARY UNIVERSITY
EXAMINATIONS
2021/2022 ACADEMIC YEAR
FOURTH YEAR FIRST SEMESTER**

**SCHOOL OF NATURAL RESOURCE, TOURISM
AND HOSPITALITY**

**BACHELOR OF ENVIRONMENTAL STUDIES
(EARTH SCIENCES)**

COURSE CODE: EES 4157

COURSE TITLE: APPLIED REMOTE SENSING

DATE: 8TH APRIL, 2022

TIME: 1430-1630

INSTRUCTIONS TO CANDIDATES

Answer **ALL** questions in section A and any other **THREE** in section B.

This paper consists of 2 printed pages. Please turn over

SECTION A: 25 MARKS - ANSWER ALL THE QUESTIONS IN THIS SECTION

1. Describe the basic principle of a hyperspectral remote sensor
(5 marks)
2. How will you distinguish agricultural plantation from cropland in terms of tone, texture, shape, size, pattern, location and association?
(5 marks)
3. Using the remote sensing techniques, we can map and monitor crop types and acreage of a farm. Describe some of the most important imagery resolutions that would influence the observations in this case
(5 marks)
4. Explain how remote sensing can be applied to managing environmental hazards.
(5 marks)
5. Distinguish between visual image interpretation and digital image processing (DIP) approaches for extracting information from remotely sensed data
(5 marks)

SECTION B: 45 MARKS -CHOOSE ANY THREE (3) QUESTIONS

6. Discuss the application of remote sensing in the following areas:
 - a. Land-use/land cover **(3 marks)**
 - b. Soil studies **(3 marks)**
 - c. Wetlands **(3 marks)**
 - d. Archaeology **(3 marks)**
 - e. Mapping socio-economic aspects **(3 marks)**
7. Write short notes on the following in relation to remote sensing:
 - a. Image structure restoration and enhancement **(3 marks)**
 - b. image classification **(3 marks)**
 - c. Color composite **(3 marks)**
 - d. IR photography **(3 marks)**
 - e. Constraints of airborne multi-spectral scanners **(3 marks)**
8. Describe the supervised and unsupervised image classification processes and evaluate their suitability in the analysis of vegetation in the Mau forest
(15 marks)
9. Discuss the significance of Remote sensing using practical examples from forestry, agriculture and water resources management
(15 marks)
10. Discuss the image enhancement techniques used in remote sensing
(15 marks)

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