



MACHAKOS UNIVERSITY
University Supplementary Examinations for 2021/2022 Academic Year
SCHOOL OF ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT
DEPARTMENT OF ENVIRONMENTAL SCIENCES

**THIRD YEAR SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF
BACHELOR OF ENVIRONMENTAL SCIENCE**

ENS 331: REMOTE SENSING FOR ENVIRONMENTAL SCIENCES

Date:

Time:

Instructions: Answer question ONE and any other TWO questions

QUESTION ONE (30 Marks)

- a) Citing relevant examples, explain the following concepts
- i. Remote sensing (2 marks)
 - ii. Radiometric resolution (2 marks)
 - iii. Atmospheric windows (2 marks)
 - iv. Reflectance (2 marks)
 - v. Rayleigh scattering (2 marks)
- b) Discuss the key interactions between the electromagnetic radiation and atmosphere and show their effect on data collected using remote sensing. (10 marks)
- c) Explain the key elements you would adopt in visual interpretation of remote sensing data for mapping of land cover types (10 marks)

QUESTION TWO (20 Marks)

- a) Discuss the advantages and disadvantages supervised classification method in land resource mapping. (10 marks)
- b) Explain the methods recommended for correction of geometric errors in remote sensing data. (10 marks)

QUESTION THREE (20 Marks)

Discuss the interaction between electromagnetic radiation and different objects on the earth's surface.

QUESTION FOUR (20 Marks)

Using suitable examples, discuss the potential application of remote sensing in management of forest resources in Kenya.

QUESTION FIVE (20 Marks)

Citing relevant examples, discuss the challenges and advantages of remote sensing application in natural resources management in your county.