



# MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR  
BACHELOR OF ENVIRONMENTAL STUDIES (ENVIRONMENTAL RESOURCE  
CONSERVATION)

ENS 331: REMOTE SENSING FOR ENVIRONMENTAL SCIENCES

DATE: 24/3/2021

TIME: 8.30-10.30 AM

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## **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. Electromagnetic spectrum (2 marks)
  - iii. Non-selective scattering (2 marks)
  - iv. Mie scattering (2 marks)
  - v. Visual image interpretation (2 marks)
- b) Explain the key elements you would consider in visual interpretation of high-resolution aerial photographs (10 marks)
- c) Explain the key steps in the application of supervised classification of remote sensing data (10 marks)

### **QUESTION TWO (20 MARKS)**

- a) Citing relevant examples discuss how atmospheric conditions influence the satellite-based remote sensing process (10 marks)
- b) Explain the pre-processing approaches used to correct atmospheric effects on remotely sensed data (10 marks)

**QUESTION THREE (20 MARKS)**

Discuss how you would apply remote sensing in the assessment of human impacts on forest resources in Kenya

**QUESTION FOUR (20 MARKS)**

Discuss the key limitations affecting the application of remote sensing data in of management natural resources

**QUESTION FIVE (20 MARKS)**

Discuss the importance of remote sensing in the management of natural resources in Kenya