



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

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