MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

THIRD YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR IN ENVIRONMENTAL STUDIES & COMMUNITY DEVELOPMENT

BACHELOR OF ENVIRONMENTAL STUDIES (RESOURCE CONSERVATION),

BACHELOR OF ENVIRONMENTAL SCIENCES

ENS 331: REMOTE SENSING FOR ENVIRONMENTAL SCIENCES

DATE: 23/7/2019   **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.   Atmospheric windows   (2 marks)

  iii.   Visual image interpretation   (2 marks)

  iv.   Supervised image classification   (2 marks)

  v.   Unsupervised image classification   (2 marks)

b)   Citing relevant examples, explain the key elements in visual image interpretation

                                                                                                                      (10 marks)

c)   Discuss the major factors that influence the applicability of remote sensing data in environmental sciences   (10 marks)

QUESTION TWO (20 MARKS)

Discuss, with a suitable illustration, the key components of the remote sensing process in the characterization of marine ecosystems.

QUESTION THREE (20 MARKS)

a)   Using illustrations, describe the scattering mechanism of electromagnetic energy in the atmosphere   (10 marks)

b)   Discuss how the target reflectance properties affect the remote sensing data quality

                                                                                                                                              (10 marks)

QUESTION FOUR (20 MARKS)

QUESTION FIVE (20 MARKS)

Using suitable examples, discuss the various thematic areas for the application of remote sensing techniques in environmental science