MACHAKOS UNIVERSITY

University Examinations For 2018/2019 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION FOR BACHELOR ENVIRONMENTAL STUDIES (RESOURCE CONSERVATION)

ENS 331: REMOTE SENSING FOR ENVIRONMENTAL SCIENCES

DATE: 17/4/2019 **TIME: 11:00 – 1:00 PM**

INSTRUCTIONS: Answer question ONE and any other TWO

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Explain the following concepts

i) Remote sensing (2 marks)

ii) Atmospheric windows (2 marks)

iii) Visual image interpretation (2 marks)

iv) Image classification (2 marks)

v) Digital image processing (2 marks)

b) Citing relevant examples, explain the key elements in visual image interpretation. (10 marks)

c) Using land use planning in Machakos county as an example, describe how land suitability mapping can be carried out using remote sensing (10 marks)

QUESTION TWO (20 MARKS)

a) Discuss the major components of remote sensing process and their relevance (12 marks)

b) Discuss major characteristics of remote sensing images and how they affect the application of the data in environmental sciences (8 marks)

QUESTION THREE (20 MARKS)

As a consultant hired to evaluate changes in the Mara ecosystem, discuss how you would apply Remote Sensing in the exercise.

QUESTION FOUR (20 MARKS)

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

QUESTION FIVE (20 MARKS)

Citing relevant examples, discuss the supervised and unsupervised image classification processes and evaluate their suitability in the analysis of tree cover change-detection in the Kenya.