MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

FOURTH YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF EDUCATION (SPECIAL NEEDS EDUCATION)

BACHELOR OF EDUCATION (SCIENCE)

BACHELOR OF EDUCATION (ARTS)

BACHELOR OF ARTS

AGE 400: REMOTE SENSING AND RESOURCE MANAGEMENT

DATE: 16/8/2021 **TIME: 11.00-1.00 PM**

INSTRUCTIONS;

Answer question ONE and any other TWO questions

QUESTION ONE (COMPULSORY) (30 MARKS)

a) Citing relevant examples, explain the following concepts

i. Remote sensing (2 marks)

ii. Radiance (2 marks)

iii. Spectral resolution (2 marks)

iv. Rayleigh scattering (2 marks)

v. Object-based classification (2 marks)

b) Using appropriate examples, discuss the key approaches you would adopt in pre-processing of remotely sensed imagery for monitoring expansion of urban areas. (10 marks)

c) Discuss the key mechanisms in the interactions between the electromagnetic radiation and atmosphere and their effect on data collected using remote sensing. (10 marks)

QUESTION TWO (20 MARKS)

a) Explain the key elements you would consider in visual interpretation of remote sensing data for mapping of land cover types. (10 marks)

b) Discuss the potential application of remote sensing in monitoring of marine resources in Kenya. (10 marks)

QUESTION THREE (20 MARKS)

Discuss the pixel-based image classification methods citing their advantages and disadvantages in land resource mapping.

QUESTION FOUR (20 MARKS)

Using suitable examples, discuss the potential application of remote sensing in geology.

QUESTION FIVE (20 MARKS)

Citing relevant examples, discuss why you would recommend application of remote sensing in natural resources management in your county.