MACHAKOS UNIVERSITY

University Examinations for 2022/2023Academic Year

SCHOOL OF AGRICULTURE, ENVIRONMENT AND HEALTH SCIENCES

DEPARTMENT OF ENVIRONMENTAL SCIENCES

SECOND YEAR FIRST SEMESTER EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIES AND COMMUNITY DEVELOPMENT

BACHELOR OF SCIENCE (COMMUNITY RESOURCE MANAGEMENT)

ESU 211: INTRODUCTION TO REMOTE SENSING AND

GEOGRAPHIC INFORMATION SYSTEM

DATE: **TIME:**

INSTRUCTIONS: Answer question ONE and any other TWO questions

QUESTION ONE (COMPULSORY)(30 MARKS)

a) Explain the following:
   i.   Remote sensing   (2 marks)
   ii. Geographic information system   (2 marks)
   iii. Database management system   (2 marks)
   iv. Spectral reflectance   (2 marks)
   v.   Atmospheric windows   (2 marks)

b) Discuss the interaction mechanisms between electromagnetic radiation and the atmosphere
                                                                                                               (10 marks)
c) Explain the categories of predominant geoprocessing operations used in GIS   (10 marks)

QUESTION TWO (20 MARKS)

a) Explain the key steps in supervised classification of satellite images   (10 marks)

b) Explain the key factors you would consider in designing a map to communicate spatial information
                                                                                                               (10 marks)

QUESTION THREE (20 MARKS)

Discuss the advantages of remote sensing and GIS application in management of natural resources

QUESTION FOUR (20 MARKS)

Explain why you would recommend a computer-based database management system for management of spatial data in your county

QUESTION FIVE (20 MARKS)

Using suitable examples, discuss how you would carry out visual interpretation of aerial photographs of an area characterized by different land cover types