



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIES (RESOURCE CONSERVATION

BACHELOR OF ENVIRONMENTAL STUDIES (COMMUNITY DEVELOPMENT)

ECD 211: INTRODUCTION TO GEO-SPATIAL TECHNIQUES

DATE: 19/01/2021

TIME: 2.00-4.00 PM

INSTRUCTIONS:

Answer question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

- a) Explain the following terms
- i. Geographic information system (2 marks)
 - ii. Remote sensing (2 marks)
 - iii. Spatial generalization (2 marks)
 - iv. Raster data (2 marks)
 - v. Vector data (2 marks)
- b) Discuss the key elements in the development and implementation of a Geographic Information System (10 marks)
- c) Using appropriate examples, explain the different types of a computer based spatial Database management systems (DBMS) that can be used in environmental management (10 marks)

QUESTION TWO (20 MARKS)

- a) Discuss the key components of Satellite remote sensing as a source of spatial data (10 marks)

- b) Citing relevant examples, explain how generalization of spatial data can be carried out
(10 marks)

QUESTION THREE (20 MARKS)

- a) Discuss how you would use geoprocessing operations in GIS to create new spatial datasets from existing data (10 marks)
- b) Discuss how GIS can be used to select a suitable solid waste management site for Machakos county (10 marks)

QUESTION FOUR (20 MARKS)

- a) Explain the different approaches that can be used in analysis of geometry and the attributes of spatial features in GIS (10 marks)
- b) Explain how you would address errors in spatial data for a project on mapping of wetlands in Kenya (10 marks)

QUESTION FIVE (20 MARKS)

Citing relevant examples, discuss how remote sensing technologies can be effectively used in climate change management in your county