



MACHAKOS UNIVERSITY

University Examinations for 2018/2019 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

**SECOND YEAR SPECIAL/SUPPLEMENTARY EXAMINATION FOR
BACHELOR IN ENVIRONMENTAL STUDIES (RESOURCE CONSERVATION)**

ENVIRONMENTAL STUDIES AND COMMUNITY DEVELOPMENT

ECD 211: INTRODUCTION TO GEO-SPATIAL TECHNIQUES

DATE: 26/7/2019

TIME: 2.00-4.00 PM

INSTRUCTIONS:

Answer question ONE and any other TWO questions

QUESTION ONE (30 MARKS)

- a) Explain the following key terms as used in geo-spatial techniques
- i. Geographic phenomena (2 marks)
 - ii. Remote sensing (2 marks)
 - iii. Geographic Information System (2 marks)
 - iv. Spatial Database (2 marks)
 - v. Data Generalization (2 marks)
- b) Discuss the significance of geospatial techniques in the sustainable management of natural resources in Kenya (20 marks)

QUESTION TWO (20 MARKS)

Using appropriate examples, explain the key components in the development and application of Geographic Information System (GIS) in water resources management in Kenya

QUESTION THREE (20 MARKS)

- a) Compare and contrast raster and vector data formats (10 marks)
- b) Explain the factors to consider in collection and analysis of spatial data (10 marks)

QUESTION FOUR (20 MARKS)

Discuss the applicability of geospatial techniques in management of the following resources in Kenya:

- a) Forest resources (10 marks)
- b) Marine resources (10 marks)

QUESTION FIVE (20 MARKS)

- a) Using suitable examples, discuss the spatial data management and analysis procedures appropriate for the monitoring of the Mara ecosystem (10 marks)
- b) Explain the key steps in developing a computer-based spatial database management system (DBMS) (10 marks)