MACHAKOS UNIVERSITY

University Examinations for 2020/2021 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

SECOND YEAR SPECIAL/SUPPLIEMENTARY EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIES (COMMUNITY DEVELOPMENT)

BACHELOR OF ENVIRONMENTAL STUDIES (ENVIRONMENTAL RESOURCE CONSERVATION)

ECD 211: INTRODUCTION TO GEO-SPATIAL TECHNIQUES

DATE: 23/3/2021 **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 Information System (2 marks)

ii. Spatial data (2 marks)

iii. Attribute data (2 marks)

iv. Remote sensing (2 marks)

v. Decision support system (2 marks)

b) Explain the key components of the remote sensing process citing how they affect the quality of the data collected (10 marks)

c) Discuss the key operations used in the integrated analysis of spatial and attribute data in a GIS (10 marks)

QUESTION TWO (20 MARKS)

a) As the project leader in the planning and management of water resources in your county, discuss the key factors you would consider in determining the suitable sources for spatial data for the project (10 marks)

b) Using appropriate examples, explain the types of questions that geo-spatial techniques aid answering for decision-making in natural resources management (10 marks)

QUESTION THREE (20 MARKS)

a) Discuss why GIS is appropriate for management and analysis of spatial data in natural resources conservation (10 marks)

b) As the head of the Department Environmental Planning of your County, discuss the steps you would consider in creating a computer-based GIS database (10 marks)

QUESTION FOUR (20 MARKS)

Discuss the different types of geodatabases that can be used in spatial data management in a GIS

QUESTION FIVE (20 MARKS)

Citing relevant examples, discuss why you would recommend geo-spatial techniques in the planning and management of natural resources in your county