



MACHAKOS UNIVERSITY

University Examinations for 2019/2020 Academic Year

SCHOOL OF ENVIRONMENT AND NATURAL RESOURCES MANAGEMENT

DEPARTMENT OF ENVIRONMENTAL SCIENCES

THIRD YEAR SECOND SEMESTER EXAMINATION FOR

BACHELOR OF ENVIRONMENTAL STUDIES (RESOURCE MANAGEMENT)

AGE 306: GEO-INFORMATICS

DATE: 10/11/2020

TIME: 8.30-10.30 AM

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. Spatial entities (2 marks)
 - iii. Remote sensing (2 marks)
 - iv. Spatial generalization (2 marks)
 - v. Topology (2 marks)
- b) Discuss the key elements in the development and implementation of a Geographic Information System. (10 marks)
- c) Discuss the significance of GIS and remote sensing integration in natural resource management in Kenya. (10 marks)

QUESTION TWO (20 MARKS)

- a) Explain the key functions you would use for integrated analysis of spatial and attribute data for natural resource assessment in your county. (10 marks)
- b) Discuss the key topological relations used in the analysis of vector data in GIS. (10 marks)

QUESTION THREE (20 MARKS)

Discuss how generalization of spatial objects can be carried out in the representation of the real world features in a GIS.

QUESTION FOUR (20 MARKS)

Discuss the key measures you would recommend for development of an effective GIS-based Decision Support Systems for drought monitoring in Kenya.

QUESTION FIVE (20 MARKS)

- a) Explain error detection methods that you would adopt in the processing of spatial data
(10 marks)
- b) Citing relevant examples, explain why you would recommend a computer based spatial Database Management Systems for natural resource management in your county.
(10 marks)