



UNIVERSITY OF EMBU

2017/2018 ACADEMIC YEAR

SECOND SEMESTER EXAMINATIONS

FOURTH YEAR EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE
(ENVIRONMENTAL CONSERVATION AND NATURAL RESOURCE
MANAGEMENT)

SGP 424: GIS APPLICATIONS IN ENVIRONMENTAL MANAGEMENT

DATE: APRIL 10, 2018

TIME: 2:00 – 4:00 PM

INSTRUCTIONS: Answer any ten (10) questions (7 marks each)

- 1) Explain the basic elements of GIS.
- 2) Compare three types of data in GIS.
- 3) GIS aims at addressing and answering certain environmental questions. Explain the statement.
- 4) "Spatial analysis functions are the power of GIS". Discuss this statement with reference to:
 - a) Conflation (2 marks)
 - b) Geometric transformations (5 marks)
- 5) Demonstrate the application of GIS in the following areas:
 - a) Irrigation water management (4 marks)
 - b) Urban planning (3 marks)
- 6) You are tasked with capturing data for a GIS project:
 - a) Name two types of data you would capture (1 mark)
 - b) Explain the techniques you would use for capturing your data types (6 marks)

- 7) a) Differentiate between accuracy and precision in GIS data handling (2 marks)
b) Explain the sources of inaccuracy and imprecision during data collection and integration into GIS (5 marks)
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- 8) Discuss the challenges of GIS.
- 9) Demonstrate how you would exercise quality assurance when dealing with GIS data.
- 10) Describe the process of rasterization of digitized data of a county boundary in a map.
- 11) You are provided with the map of Embu County. Describe how you would manually digitize the map into a GIS database.
- 12) Explain the following data functions in GIS. Illustrate your answers.
- a) Line coordinate thinning (3½ marks)
- b) Edge-matching (3½ marks)

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