



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

((A Constituent College of JKUAT)

(A Centre of Excellence)

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN
CIVIL ENGINEERING

ECE 2517: GEOGRAPHICAL INFORMATION SYSTEM

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: OCTOBER 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions. Answer question **ONE (COMPULSORY)** any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

SECTION A (COMPULSORY – 30 MARKS)

- a) Discuss factors that must be considered when choosing spatial data representation. **(10 marks)**
- b) Differentiate between the following pairs of terms:
- i) Data and Information
 - ii) Information and Knowledge
 - iii) Database and Database Management System
 - iv) Evidence and Wisdom **(8 marks)**

- c) What are the advantages and disadvantages of raster and vector representation? (12 marks)

SECTION B (ANSWER ANY TWO QUESTIONS FROM THIS SECTION)

Question Two (20 marks)

- a) How is raster data captured in terms of primary geospatial data capture? (6 marks)
- b) What is a scanner? What are the reasons behind scanning a hard copy media? (4 marks)
- c) What are the main parameters for evaluating a scanner? (7 marks)
- d) What are the main advantages of manual digitization process? (3 marks)

Question Three (20 marks)

- a) Make short notes on the following:
i) Arithmetic operations
ii) Geometric operations
iii) Statistical operations (6 marks)
- b) What are the main components of a GIs software system? (7 marks)
- c) What are the advantages and disadvantages of file-based processing in GIs data management system? (7 marks)

Question Four (20 marks)

- a) Explain the contents of Database Mapping functions of a GIs system. (4 marks)
- b) What are the main editing problems in GIs with regard to vector and raster formats. (10 marks)
- c) Make short notes on vector and raster data representation in terms of point, line and polygons. (6 marks)

Question Five (20 marks)

- a) Discuss the process of data collection in a GIs system. (10 marks)
- b) What are the procedures in GIs Analysis? (10 marks)