



TECHNICAL UNIVERSITY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN CIVIL
ENGINEERING
[Institutional Based Programmes]

ECE 2517: GEOGRAPHICAL INFORMATION SYSTEM

END OF SEMESTER EXAMINATION

SERIES: APRIL 2013

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** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

Question One (Compulsory)

- a) Define Geographical Information System. **(2 marks)**
- b) Differentiate between the following terms as used in GIS.
- (i) Data and information
 - (ii) Information and knowledge
 - (iii) Database and database management system
 - (iv) Discrete object and continuous filed views **(8 marks)**
- c) How do you classify benefits of GIS in terms of tangible and intangible? **(10 marks)**
- d) With an aid of a sketch, describe the data collection procedure used in a GIS system. **(10 marks)**
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Question Two

- a) What are the main components of functional requirements in a GIS system? **(7 marks)**
- b) Discuss the object oriented database management system in GIS **(7 marks)**
- c) What are the **SIX** parameters important in the evaluation of a scanner? **(6 marks)**

Question Three

Compare vector and raster data representation in terms of:

- (i) Source of data
- (ii) Feature representation
- (iii) Geographical analysis
- (iv) Cartographic outputs
- (v) Spatial storage **(20 marks)**

Question Four

- a) What do you understand by the following terms:
 - (i) Point mode
 - (ii) Stream mode
 - (iii) Switch mode **(6 marks)****
- b) How do you overcome/address the problem of operators stress and fatigue when digitizing **(3 marks)**
- c) What are the advantages and disadvantages of manual digitization process? **(5 marks)**
- d) Describe the components of a GIS system **(6 marks)**

Question Five

- a) What are the main procedures in GIS data analysis **(10 marks)**
- b) What are the objectives of GIS **(3 marks)**
- c) What are some of the advantages and disadvantages of database management system in a G/S.? **(7 marks)**