



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

SCB 303: GEOGRAPHIC INFORMATION SYSTEMS IN NATURAL RESOURCES MANAGEMENT

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DATE: MONDAY 26TH MARCH 2012 TIME: 11.00 A.M. – 1.00 P.M.

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INSTRUCTIONS

Answer ALL questions in Section A and ANY ONE question from Section B.

Section A should be answered in the spaces provided on the question paper only

SECTION A: ANSWER ALL QUESTIONS

1. Define the following:
 - a) Remote Sensing (1 mark)
 - b) Geospatial Information system (2 marks)
 - c) Radiometric Correction (1 mark)
 - d) Geometric correction (1 mark)
2.
 - a) Spatial data can be describe in three forms, namely? Give examples (3 marks)
 - b) What is Geo referencing? (1 mark)
 - c) Differentiate between coordinate systems and map projections (2 marks)
3. Describe a typical GIS workflow (5 marks)
4. Discuss briefly the main sources of GIS data and give examples (5 mark)

5. Briefly discuss Spectral Reflection under the following, and highlight on the characteristics that determine the reflectance:
- a) Spectral Reflectance of Vegetation (3 marks)
 - b) Spectral Reflectance of Water (2 marks)
6. Digital Image Processing: (DIP) is a technique which manipulation of digital image to extract information. In light of this, differentiate between Digital Image Enhancement and Digital Image classification (5 marks)
7. Topographic maps are a category of maps,
- a) Explain their function and users (2 marks)
 - b) Highlight the factors to consider when creating a map. (3 marks)
8. By giving examples, highlight the types of information you can derive from a satellite and or aerial images (5 marks)

SECTION B: ANSWER ONE QUESTION

1. a) Briefly outline the steps you would follow if tasked with the introduction and implementation a GIS/Remote Sensing system in an organization. (10 marks)
- b) Discuss the main Components of a GIS system while giving elaborate examples. (20 marks)
2. Assume you have taken up an office as the Remote Sensing head of department, discuss the key area of natural resource management your department will look at, and the remote sensing / GIS applications your team will come up with. (30 marks)
3. a) Describe the sources of errors in spatial data (12 marks)
- b) Discuss the factors affecting quality of spatial data (12 marks)
- c) Outline the main factors to consider when acquiring digital data sets for any project (6 marks)