



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2010/2011

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF COMMERCE

EPM 251: COMPUTER APPLICATIONS AND GIS

DATE: Tuesday, 23/11/2010

TIME: 11.00P.M. – 1.00P.M.

INSTRUCTIONS: Answer Question **ONE** and any other **TWO** Questions.

1.
 - (i) Describe the major sources of data used for computer applications in Environmental Planning and Management. (12 Marks)
 - (ii) Explain what you understand by the term “GIS” and outline the computer components of a geographical information system. (8 Marks)
 - (iii) Explain the term ‘Spatial analyses’ as used in computer applications for environmental management. What are some of the methods that you would use for spatial analysis? (10 Marks)
2. You have been approached by the Kenya Wildlife Service as an expert in computer applications in Environmental Planning and Management to advice on how the Ministry can carry out a comprehensive analysis of land use/land cover and wildlife analysis in the Tsavo National Park.

- (a) In your advice to the Ministry, explain giving reasons the satellite data you would recommend for use in land use/cover analysis for Tsavo National Park. (4 Marks)
 - (b) What other data would you use to compliment the satellite imageries? (4 Marks)
 - (c) Briefly outline the methodology you would adopt for your analysis. (6 Marks)
 - (d) Explain how computer applications and GIS can be used in the management of this important resource. (6 Marks)
3. (a) Most of the useful data needed for analyses in various applications in GIS and Remote Sensing are not in digital form but in analogue form. Explain the methods and equipments you would use to convert analogue maps, aerial photographs and existing reports into digital form for easy computer assisted digital analysis. (10 Marks)
- (b) Mention and explain some advanced technologies used for primary data acquisition for GIS. (10 Marks)
4. (a) Explain the required functions for a spatial database and outline the benefits you would derive from such a database. (10 Marks)
- (b) Explain five major characteristics of an ideal geospatial information system that can be relied upon in solving various issues and problems in planning and management. (10 Marks)
5. (a) Explain the characteristics of remote sensing data that makes it a useful source of data for analysis of various problems and applications. (8 Marks)
- (b) Briefly explain the various stages that you would need to go through while processing data from remote sensing. (6 Marks)

- (c) Explain how you would create a map document of different layers using ARCGIS. (6 Marks)