MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF ARTS IN URBAN & REGIONAL PLANNING WITH INFORMATION TECHNOLOGY

CITY CAMPUS - REGULAR

PGS 414: GIS IN ENVIRONMENTAL PLANNING AND MANAGEMENT

Date: 22nd April, 2016   Time: 2.00 - 4.00pm

INSTRUCTIONS:

- **Answer Question ONE (Compulsory) any other TWO.**

QUESTION: 1

a. Outline the aims of environmental planning and management (5 marks)

b. Explain briefly the following:

1. Spatial decision support system (SDSS) (2 Marks)

2. Change detection (2 Marks)

3. Suitability analysis(2 Marks)

4. Location based services (2 Marks)

c. Differentiate the following:

1. Aggregate and Disaggregate data(3 Marks)

2. Cross-sectional and Longitudinal data(3 Marks)

d. Explain any 5 major applications of GIS in Environmental planning and management in Kenya (5 marks)

e. Outline the main sources of socioeconomic data for GIS application (6 Marks)

QUESTION: 2

a. "GIS is not a decision making tool, it is a decision support tool" Giving examples expound on the above statement in the context of environmental planning and management. (10 Marks)

b. Outline the principles, GIS as a tool requires in enhancing decisions making. (10 Marks)

QUESTION: 3

a. Outline the applications of GIS in socioeconomic planning and management in Kenya. (10 Marks)

b. What are the main constrains to the use of GIS in environmental planning and management in Kenya. (10 Marks)

QUESTION: 4

a. Using illustrations explain the GIS modeling thought process. (10 Marks)

b. Giving examples explain suitability analysis (4 Marks)

c. Briefly explain the following:

1. Binary site selection(2 Marks)

2. Weighted site selection(2 Marks)

3. Fuzzy logic(2 Marks)

QUESTION: 5

a. Giving examples explain change detection (5 Marks)

b. Briefly explain the following applications:

1. Post-classification Comparison Change Detection(3 Marks)

2. Image Algebra Change Detection(3 Marks)

3. Multi-date composite image(3 Marks)

4. Spectral change vector analysis(3 Marks)

5. Binary mask applied to Date 2(3 Marks)

QUESTION: 6

a. Outline the Major applications of GIS in Natural Resource Management (10 marks)

b. Giving examples explain how GIS is applied in Environmental Impact assessment (10 marks)