



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

**THIRD YEAR FIRST SEMESTER EXAMINATION FOR THE DEGREE OF
BACHELOR OF SCIENCE IN GEOSPATIAL INFORMATION SCIENCE
WITH INFORMATION TECHNOLOGY**

CITY CAMPUS - REGULAR

PGS 324: SPATIAL MULTI CRITERIA EVALUATION

Date: 3rd December, 2015

Time: 9.00 - 11.00 am

INSTRUCTIONS:

- Answer question ONE and any other TWO questions.



PGS 324: SPATIAL MULTI CRITERIA EVALUATION

Answer question 1 (compulsory) and Any other TWO

1.a) Explain the following terms:

- I. Decision frame (2 marks)
 - II. Commensuration (2 marks)
 - III. Criterion (2 marks)
 - IV. Decision rule (2 marks)
 - V. Evaluation (2 marks)
- b) Describe the cons and pros of applying Multi Criteria Evaluation in problem solving. (10 marks)
- c) Briefly and giving examples explain the various methods of determining weights when applying Multi Criteria Evaluation. (10 marks)

2. a) What problems or limitations are there with the sieve mapping approach?
(10 marks)

b) Heavy rains have cost havoc in the Country in the past. The Disaster and Response Agency requires adequate information in order to mitigate any future destruction. Explain how GIS can support this operation. (10 marks)

3 a) A GIS is an ideal tool to use to analyze and solve multiple criteria problems. Giving examples explain the essential of GIS as a tool in this context. (10 marks)

b) Briefly, explain the various principles/methods of Spatial Multi Criteria Evaluation (10 marks)

4.a) Describe the advantages and disadvantages of applying Analytic Hierarchy Process (AHP) in problem solving. (10 marks)

b) Explain in detail, the two kinds of criteria evaluations applied in solving problems. (10 marks)

5.a) Within the context of Network analysis, explain the possible basis for defining the optimal route. (10 marks)

b) Explain the various factors to consider when determining criteria to be included in Multi Criteria Evaluation. (10 marks)

6. Recently, one of the Maseno University buildings got fire and property was damaged. As a result the University management wishes to relocate some of the administrative services offered at the Main Campus to Kisumu City.

a. What possible criteria of evaluation the team may have used in making their decision? Explain. (10 marks)

b. Discuss the role of Spatial Multi Criteria Evaluation within the framework of GIS in the above scenario. (10 marks)