



**THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE**

**((A Constituent College of JKUAT)**

(A Centre of Excellence)

# **Faculty of Engineering & Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

**UNIVERSITY EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN  
CIVIL ENGINEERING**

ECE 2309: TRANSPORTATION PLANNING AND DEVELOPMENT

**END OF SEMESTER EXAMINATION**

**SERIES: AUGUST 2012**

**TIME: 2 HOURS**

### **Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*
- *Pocket Calculator*

This paper consists of **FIVE** questions

Answer question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

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### **Question One (Compulsory - 30 Marks)**

a) Name and briefly describe the **FIVE** steps followed in a rational transport planning process

**(7 ½ marks)**

b) One of the major tasks in transport planning is the evaluation of the alternative plans. In relation to this briefly explain the following:

- i) Financial impact analysis
- ii) Economic impact analysis
- iii) Land use analysis

**(22 ½ marks)**

### Question Two (20 marks)

- a) Describe the following trip generation modeling approaches and state **TWO** merits and **TWO** demerits of each approach.
- i) Regression analysis
  - ii) Category analysis **(8 marks)**
- b) (i) List **THREE** factors that influence trip generation and **THREE** factors that influence trip Attraction. **(3 marks)**  
(ii) Briefly describe the model split modeling method. **(7 marks)**
- c) Briefly explain 'Captivity' as used in transport planning. **(2 marks)**

### Question Three (20 marks)

- a) Describe the following human factors that affect the design of transportation facilities.
- i) Perception-reaction time
  - ii) Safety consideration
  - iii) Comfort **(15 marks)**
- b) Explain what 'transportation' is and name the **FOUR** elements that make up a transportation system. **(5 marks)**

### Question Four (20 marks)

- a) Describe the classification of public transit systems in the context of:
- i) Level of service
  - ii) Transport function
  - iii) Type of service modes
  - iv) Type of right of way. **(8 marks)**
- b) Briefly explain the following:-
- i) Three properties of a good route set
  - ii) Three properties of a good schedule **(7 marks)**
- c) Explain what a 'Para-transit' is and give a local example of paratransits. **(5 marks)**

### Question Five (20 marks)

- a) With the aid of a sketch, explain 'bundling' in the context of public transport. **(5 marks)**  
b)
- c) The choice of transport mode to use is largely dependent on the quality of service offered. Briefly describe the quality factors that would have an effect on a commuters' choice of a mode. **(7 marks)**
- d) Briefly describe the **THREE** main objectives of public transportation. **(3 marks)**