



TECHNICAL UNIVERSITY OF MOMBASA  
**Faculty of Engineering &  
Technology**

DEPARTMENT OF BUILDING & CIVIL ENGINEERING

UNIVERSITY EXAMINATION FOR DECREE IN:

**BACHELOR OF SCIENCE IN CIVIL ENGINEERING (BSCE)**

ECE 2318: TRANSPORTATION ENGINEERING I

**END OF SEMESTER EXAMINATION**

SERIES: APRIL 2015

**TIME ALLOWED: 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

Use neat, large and well labeled diagrams where required

This paper consists of **TWO** printed pages

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**Question One (Compulsory)**

- a) Briefly explain the following properties of the environment which have a direct impact on human behavior:
- (i) Spatial organization
  - (ii) Circulation and movement
  - (iii) Ambience
  - (iv) Communications
  - (v) Resources
- (15 marks)**
- b) Explain the following tasks carried out to assist in forecasting travel demand:-
- (i) Subdividing the area of forecasting
  - (ii) Defining the boundaries
- (8 marks)**
- c) Describe how data for the following traffic characteristics are collected:
- (i) Flow rate
  - (ii) Speed

**(iii) Density  
marks)**

**(7**

**Question Two**

Describe the SEVEN steps that are followed in the design of collective and individual transport networks  
**(20 marks)**

**Question Three**

a) Describe a typical hierarchical urban street distribution system **(10 marks)**

b) With the aid of a sketch, describe the nature of transportation demand **(10 marks)**

**Question Four**

a) Describe in details the 'car following behavior' found in traffic streams **(8 marks)**

b) There are FOUR basic types of transportation networks. Name and explain them **(12 marks)**

**Question Five**

With the aid of sketches, describe the main types of transportation networks found in major cities  
**(20 marks)**