



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

DEPARTMENT OF BUILDING & CIVIL ENGINEERING
UNIVERSITY EXAMINATION FOR BACHELOR OF SCIENCE IN CIVIL
ENGINEERING (BSCE)

ECE 2308: TRANSPORTATION PLANNING & DEVELOPMENT

END OF SEMESTER EXAMINATION

SERIES: APRIL 2013

TIME ALLOWED: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- Answer Booklet

This paper consists of **FIVE** questions.

Answer question **ONE (COMPULSORY)** in section **A** and any other **TWO** questions from section **B**

Maximum marks for each part of a question are as shown

This paper consists of **TWO** printed pages

SECTION A

Question One (Compulsory)

- a) Briefly 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) Describe the following human factors that affect the design of transportation facilities:
- (i) Perception-reaction time
 - (ii) Safety factors
 - (iii) Comfort **(15 marks)**

- c) Name and briefly describe the FIVE steps that are followed in a rational transport planning process. **(7 marks)**

SECTION B (Attempt any TWO questions)

Question Two

- a) Describe the impacts of transportation on the following:
- (i) Climate
 - (ii) Natural habitats
 - (iii) Waste disposal
 - (iv) Loss of income **(10 marks)**
- b) With the aid of a sketch explain 'building' in the context of public transport. **(5 marks)**
- c) Describe the following techniques used to collect transportation data. **(5 marks)**

Question Three

- a) Briefly describe the **THREE** main categories in which public transit systems are divided into: **(10 Marks)**
- b) Describe the following types of rail-based transit systems:-
- (i) Commuter rail
 - (ii) Heavy rail
 - (iii) Light rail **(10 marks)**

Question Four

- a) (i) Briefly describe the "evolution of transportation systems" **(8 marks)**
- (ii) Briefly explain what a 'para-transit' is as used in public transportation and give a local example of a para-transit. **(5 marks)**
- b) Name and describe the **FOUR** elements that constitute a transportation system. **(4 marks)**
- c) Describe the properties of a good route set as used in route development. **(3 marks)**

Question Five

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

- a) Financial feasibility analysis
- b) Economic impact analysis
- c) Technical implication analysis
- d) Land-use impact analysis **(20 marks)**