



## TECHNICAL UNIVERSITY OF MOMBASA

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FACULTY OF ENGINEERING AND TECHNOLOGY  
DEPARTMENT OF BUILDING & CIVIL ENGINEERING  
**UNIVERSITY EXAMINATION FOR:**  
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

**ECE 2308 : TRANSPORTATION PLANNING AND DEVELOPMENT**

SPECIAL/SUPPLEMENTARY EXAMINATION

**SERIES: SEPTEMBER 2018**

**TIME: 2 HOURS**

### **Instructions to Candidates**

You should have the following for this examination

*-Answer Booklet, examination pass and student ID*

This paper consists of five questions.

Attempt question ONE (Compulsory) and any other TWO questions.

**Do not write on the question paper.**

### **QUESTION ONE (COMPULSORY) (30 Marks)**

- Clearly define the term “transportation system.” and explain its three main components [5 marks]
- To be effective, transportation planning process must be dynamic. Briefly discuss [3 marks]
- The real objective of transportation planning is the movement of people and goods – and not necessarily the movement of vehicles. Discuss [3 marks]
- Explain the term “noise” and clearly outline the effects of traffic noise pollution. [4 marks]
- List SIX national transport policy plan objectives [6 marks]
- Briefly explain the sequential stages of the classical 4-step model used in forecasting and analysis of traffic [6 marks]
- State THREE features of a good transportation plan [3 marks]

**ANSWER ANY TWO QUESTIONS FROM THIS SECTION**

### **QUESTION TWO (20 Marks)**

- With the aid of suitable diagram, explain the interaction between factors affecting route location [3 marks]



- b) Using a suitable flowchart, illustrate the basic principles of planning [5 marks]
- c) With aid of a clear diagram, explain why transportation planning must inevitably be associated with significant development in land-use planning. Illustrate your explanation with a practical example [7 marks]
- d) Explain how net present value (NPV) is used in economic evaluation of transport projects [5 marks]

**QUESTION THREE (20 Marks)**

- a) There are three types of transport plans. Name and explain them with help of a diagram [4.5 marks]
- b) Explain with the help of an equation how regression analysis is used in predicting total passenger traffic of a country [5.5 marks]
- c) Briefly explain FIVE factors taken into account in the route selection process and list the steps involved in modern method of route location for a highway or a railway. [10 marks]

**QUESTION FOUR (20 Marks)**

- a) Describe the evolution of transportation [8 marks]
- b) List the steps followed in the preparation of National Level Transport Sector Planning [9 marks]
- c) Clearly explain how fixed costs and variable costs for rail transport system affects its suitability for transportation. [3 marks ]

**QUESTION FIVE (20 Marks)**

- a) Explain the difficulties that may arise as a result of existence of a number of gauges of different measurements in a railway transport system, especially within a common market region [6 marks ]
- b) Explain FOUR methods used in analysis of accidents data [8 marks ]
- c) With the aid of suitable examples, clearly explain the term “objective planning” as it is applied to transportation planning and development. [6 marks]