



TECHNICAL UNIVERSITY OF MOMBASA

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

ECV 4221 : TRANSPORT PLANNING AND DEVELOPMENT

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: SEPTEMBER 2018

TIME: 2 HOURS

DATE: Sep 2018

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)

- a) Outline the main guiding principles in the setting of goals and objective of a transport plan
[4.5 marks]
- b) Explain the following types of transport plans:
- i) National transport plan
 - ii) Regional transport plan
 - iii) Local transport plan [4.5 marks]
- c) Forecasting and analysis of traffic is accomplished by sequential stages of a 4-step model.
Discuss [6 marks]



- d) What is a “system” and what is “systems analysis”? How are these concepts important in transportation planning? [2.5 marks]
- e) Explain the following ways of mitigating against road traffic accidents.
- i) engineering
 - ii) Enforcement
 - iii) Education [1.5 marks]
- f) Using a suitable flowchart, illustrate the transport planning process [5 marks]
- g) With the aid of a diagram, clearly explain the term “projective planning” as it is applied to transportation planning and development. [4 marks]
- h) Differentiate between fixed costs and variable costs for rail transport system. [2 marks]

ANSWER ANY TWO QUESTIONS FROM THIS SECTION
QUESTION TWO (20 Marks)

- a) Explain the term “noise” and clearly outline the effects of traffic noise pollution. [4.5 marks]
- b) Explain three commonly used methods for economic evaluation of transport projects [9 marks]
- c) State four advantages and three disadvantages of air carriers [3.5 marks]
- d) Briefly explain three benefits of Non Motorised Transport (NMT) [3 marks]

QUESTION THREE (20 Marks)

- a) Outline five driver characteristics which influence his/her behavior on the road when driving [5 marks]
- b) Explain the primary and secondary human factors which necessitate the need for a transport system. [4 marks]

- c) Using a suitable flowchart, illustrate the transport planning process and explain the term ‘organization’ as it refers to this process [6 marks]
- d) Outline the main guiding principles in the setting of goals and objective of a transport plan [5 marks]

QUESTION FOUR (20 Marks)

- a) Distinguish the terms “values” and “policy” as they are used in transportation planning. How are the two concepts/terms important in the transportation planning process? [3 marks]
- b) What is “utility index” and how is it useful in planning and development of transportation facilities such as roads and railways? Use suitable examples and diagrams [4 marks]
- c) With the aid of suitable diagram, show the interaction between factors affecting route location [3 marks]
- d) 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 of recent developments in your nearest town/city. [10 marks]

QUESTION FIVE (20 Marks)

- a) Explain FOUR methods used in analysis of accidents data [8 marks]
- b) Effective transportation planning should lead to the development of environmentally sustainable transportation system (E.S.T). What is E.S.T? List 5 main impact elements resulting from effects of traffic on the environment. [5 marks]
- c) Clearly outline the four main sub-systems of transportation, giving appropriate classes under each subsystem. In each case give examples of associated facilities. List three ways considered for classification of transport systems [7 marks]