



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY
Department of BUILDING & Civil engineering
UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN CIVIL ENGINEERING
ECV 4502 : TRANSPORT ENGINEERING II

END OF SEMESTER EXAMINATION

SERIES: AUG 2024

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)

- a) Intra-zonal trips, External trips and accessibility are terms used in transportation planning. Define these three terms (6 marks)
- b) What are the main causes of urbanization? List **FIVE** basic elements of urbanization (6 marks)
- c) Explain the following terminologies used in transportation:
 - (i) Supply
 - (ii) Demand
 - (iii) Equilibrium (3 marks)
- d) i) State the **THREE** essential components of transportation. (3 marks)

ii) With the aid of a sketch, explain the interaction between the **THREE** components in d(i) above. (7 marks)
- e) In relation to land use and transportation, explain why urban areas grow or decline in time. (2 marks)



- f) State the basic assumptions made in the Von Thunen's Regional Land Use Model (3 marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20 Marks)

- a) What is the meaning of the term "transfer effects" as used in transportation development? (2 marks)
- b) Mention the uses of desire paths in transportation planning (2 marks)
- c) Using appropriate examples, discuss "Urban form" "Urban (spatial) structure" and "Transportation planning" (8 marks)
- d) Using a diagram explain clearly the role of Transportation in Land Use. (8 marks)

QUESTION THREE (20 Marks)

- a) Explain the term "Mobility" as used in transportation and land-use in urban areas (2 marks)
- b) Discuss the major components of spatial imprint of urban transportation (10 marks)
- c) In effort of control and effective management, some functions have been Decentralized and Centralized. Outline **FOUR** Advantages and Disadvantages of each. (8 marks)

QUESTION FOUR (20 Marks)

- a) Briefly describe the 'location theory' as used in urban planning. (11 marks)
- b) Discuss the following **THREE** New approaches to development:
- i) Neo-traditional Design
 - ii) Cluster Development
 - iii) Transfer or purchase of development rights (9 marks)

QUESTION FIVE (20 Marks)

- a) The functional effectiveness of a highway is measured in terms of its ability to assist and accommodate the flow of vehicles with both safety and efficiency. Mention the

required parameters.

(8 marks)

b) State **THREE**

- i. Functional characteristics
- ii. Frictional characteristics of highways

(6 marks)

c) Briefly explain the importance of the diffusion approximations.

(6 marks)