



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY

Department of BUILDING & Civil engineering

UNIVERSITY EXAMINATION FOR:

BACHELOR OF SCIENCE IN CIVIL ENGINEERING

ECV 4413 : TRANSPORT ENGINEERING II

END OF SEMESTER EXAMINATION

SERIES: APRIL 2025

TIME: 2 HOURS

QUESTION ONE (COMPULSORY) 30 Marks

- a) Differentiate between Formal land use and Functional land use (4 marks)
- b) State the basic assumptions made in the Von Thunen's Regional Land Use Model (3 marks)
- c) What is the meaning of the term "transfer effects" as used in transportation development? (2 marks)
- d) Mention the uses of desire paths in transportation planning (2 marks)
- e) Discuss **THREE** typologies of decentralization (6 marks)
- f) Intra-zonal trips, External trips and accessibility are terms used in transportation planning. Define these three terms (6 marks)
- g) What are the main causes of urbanization? List **FIVE** basic elements of urbanization (5 marks)
- h) In relation to land use and transportation explain why urban areas grow or decline in time. (2 marks)

ANSWER ANY TWO QUESTIONS FROM THIS SECTION

QUESTION TWO (20 marks)

- a) 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 a(i) above. (7 marks)

b) Briefly explain how transportation affect economic development of an area (6 marks)

c) Explain the relationship between transportation and land development. (4 marks)

QUESTION THREE (20 Marks)

a) Using appropriate examples, discuss “Urban form” “Urban (spatial) structure” and “Transportation planning” (8 marks)

b) Discuss in detail the Burgess Concentric Model of land use (10 marks)

c) Explain the term “Mobility” as used in transportation and land-use in urban areas (2 marks)

QUESTION FOUR (20 Marks)

a) Explain briefly the Sector and multiple nuclei land use Models (6 marks)

b) Explain clearly the Emerging Land Use Concerns about urban sprawls (7 marks)

c) Discuss the various State Roles in Land Use Activities (7 marks)

QUESTION FIVE (20 Marks)

a) Discuss the **FOUR** different approaches to the concept of decentralization as classified by James W. Fesler. (6 marks)

b) Discuss the following **THREE** New approaches to development:

i) Neo-traditional Design

ii) Cluster Development

iii) Transfer or purchase of development rights (14 marks)