



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

SECOND YEAR FIRST TERM EXAMINATION FOR

DIPLOMA IN CIVIL ENGINEERING

2707 / 204 / TE: TRANSPORTATION ENGINEERING I

DATE: 2/9/2021

TIME: 8:30 – 11:30 AM

Instructions:

- This paper consists of **Five** questions.
- Answer **ALL** questions
- Maximum marks for each part of the question are as shown.

1.

a) Define the following terms:

i. Transportation Engineering

ii. Transportation System

(4 marks)

b) Explain **FIVE** problems that transportation systems address.

(10 marks)

c) Outline **THREE** components of a transportation system.

(6 marks)

2.

a) Explain **FOUR** stages of transportation modelling.

(8 marks)

b) Explain **THREE** classes of transportation systems, giving **TWO** examples in each case.

(12 marks)

3.

a) Describe **THREE** innovations that influenced the rapid development of transportation systems.

(6 marks)

b) Explain **FIVE** factors that influence the geometric design of highways.

(14 marks)

4.

- a) Explain *FIVE* objectives of transport planning. (10 marks)
- b) Outline *FOUR* stages in the transportation planning process. (10 marks)

5.

- a) Explain *FOUR* traffic manoeuvres used in at-grade intersections. (8 Marks)
- b) Using a labelled sketch describe *FOUR* geometric elements of a highway cross section. (12 marks)