



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL DIPLOMA

IN

CIVIL ENGINEERING

MODULE: Traffic Engineering

PAPER NO: 578/23/M08

DURATION: 3 Hours

MAY/ JUNE 2025 EXAMINATION

REQUIREMENTS

Calculator

INSTRUCTIONS TO CANDIDATE

1. All questions carry equal marks.
2. Answer all questions
3. Start each question on a new page.
4. Do not write anything on the question paper
5. Do not tear off any page or paper from the answer booklet.

This paper consists of 3 printed pages.

QUESTION 1

Discuss the importance of road transportation in developing nations like Zimbabwe. (20 marks)

QUESTION 2

Explain briefly, the following traffic terms:

- a) Trip generation (4 marks)
- b) O-D survey (4 marks)
- c) Trip distribution (4 marks)
- d) Trip assignment (4 marks)
- e) Modal split (4 marks)

QUESTION 3

- a) Give the definition of Level of Service (LOS). What are the physical features of roadway which tend to cause a reduction of capacity and level of service? (5 marks)
- b) State the objectives of channelization and its application in traffic engineering. Give sufficiently detailed explanation with proper sketches of positions, layouts, dimensions and signage. (15 marks)

QUESTION 4

- a) Explain briefly five important general controls principles for horizontal alignment. (5 marks)
- b) In the horizontal alignment of a highway with a design speed of 80km/hr, a horizontal curve should be designed at a deflection angle 52° . Design preference is given to wholly circular curves without transitions and a large radius according to the Zimbabwean standards. Design the curve and set out its data at 40m general chord, given that the chainage at IP is 580m. (15 marks)

QUESTION 5

Describe the stages undertaken when carrying out a land use traffic survey for a town, and give benefits of such a survey to a traffic engineer. (20 marks)

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