ZIMBABWE

MINISTRY OF HIGHER AND TERTIARY EDUCATION, SCIENCE AND TECHNOLOGY DEVELOPMENT

HIGHER EDUCATION EXAMINATIONS COUNCIL (HEXCO)

NATIONAL DIPLOMA

IN

CIVIL ENGINEERING / URBAN AND REGIONAL PLANNING

SUBJECT: Traffic Engineering PAPER NO: 578/S08

DURATION: 3 Hours

OCTOBER/NOVEMBER 2015 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. Answer ANY 5 Questions
2. Begin Each Question on a Fresh Page

This paper consists of 3 printed pages.

PAPER NO: 578/S08 – TRAFFIC ENGINEERING

QUESTION 1

a) Transport studies may be carried out to determine necessity or suitability of the variety of transport systems. The method of study vary in detail but may be generally divided into 3 main phases which are:

i) Transportation surveys
ii) Production of mathematical models
iii) Production of future demand. Explain these 3 phases. (15 marks)

b) Draw and label

i) Reverse curve (2 marks)
ii) Compound curve (3 marks)

QUESTION 2

a) Identify any five factors affecting the horizontal alignment of a highway. (10 marks)

b) Explain the importance of vertical alignment in traffic engineering. (10 marks)

QUESTION 3

Distinguish grade intersection from grade separated intercessions. (20 marks)

QUESTION 4

In relation to traffic engineering explain the following:

a) Capacity (4 marks)
b) level of service (4 marks)
c) Density (4 marks)
d) Uninterrupted flow facilities (4 marks)
e) Interrupted flow facilities (4 marks)

QUESTION 5

a) Give five factors which influence intersection design. Emphasize on their importance. (5 marks)

b) Illustrate the various modes of parking (onstreet parking) found in the Central Business District. (4 marks)

c) Highlight the factors influencing the siting of parking garages in the central business district. (6 marks)

d) Which detrimental environmental effects could arise due to construction of a new highway through an existing high density housing area. (5 marks)

QUESTION 6

a) Discuss traffic factors that have the most significant negative impact on society, buildings and the natural environment. (14 marks)

b) How can these problems be solved or lessened? (6 marks)

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