CBCS SCHEME

USN | | | | | | | | | | |

15CV561

Fifth Semester B.E. Degree Examination, June/July 2018
Traffic Engineering

Time: 3 hrs. Max. Marks: 80

Note: 1. Answer any FIVE full questions, choosing one full question from each module.
2. Missing data may be assumed suitably.

Module-1

1 a. Briefly explain various road user characteristics. **(08 Marks)**

b. A passenger car weighing 1800kg is to accelerate at a rate of $2m/s^2$ from a speed of 12kmph to 22 kmph in the first gear. The frontal area and coefficient of air resistance are $2.38m^2$ and 0.37 respectively. The transmission and rear gear ratio are 2.85:1 and 3.87:1 respectively. The radius and deformation factor of tyres are 0.35 and 0.945m respectively. Determine the engine horse power and speed of engine if transmission efficiency is 0.88. Take the gradient as + 1.2% and f = 0.025. **(08 Marks)**

OR

2 a. Discuss briefly the static and dynamic characteristics influencing the traffic. **(08 Marks)**

b. Establish the relationship between speed, flow and concentration using Green Shield theory. **(08 Marks)**

Module-2

3 a. List the different methods of measuring spot speeds. Explain any two. **(08 Marks)**

b. A vehicle of weight 30 tonnes skids through a distance of 50m before colliding with another parked vehicle of weight 3 tonnes. After collision, both the vehicles skid through a distance equal to 16m before stopping. Determine the speeds of vehicle assuming f = 0.4.

i) After collision
ii) At collision
iii) Before collision. **(08 Marks)**

OR

4 a. List the factors considered in evaluating the level of service and explain the operating conditions for the six levels of service selected by HCM. **(08 Marks)**

b. For the following data determine :

i) Lower speed limit
ii) Medium speed limit
iii) Upper speed limit
iv) Design speed
v) Arithmetic mean speed
vi) Modal speed
vii) Median speed
viii) Standard deviation and variance.

Speed range (kmph)	0 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90
Frequency (f)	12	18	68	89	204	255	199	43	33

(08 Marks)

Module-3

5 a. List the advantages and disadvantages of channelized and unchannelized intersections. **(08 Marks)**

b. Discus briefly the different types of co-ordinated signal system. **(08 Marks)**

OR

6 a. Discuss briefly the different types of road markings. **(08 Marks)**

b. The average normal flow of traffic on cross roads A and B during design period are 400 and 250 PCU per hour. The saturation flow values on these roads are estimated as 1250 PCU and 1000 PCU per hour respectively. The all red time required for pedestrian crossing is 12 seconds. Design two phase traffic signal by Webster's method. **(08 Marks)**

Module-4

7 a. Discuss briefly the various causes of accidents. **(08 Marks)**

b. Write note on :

i) Public transportation

ii) Non – Motorized traffic **(08 Marks)**

OR

8 a. Explain briefly the different types of lamps used for street lighting. **(08 Marks)**

b. Discuss briefly the causes and preventive measures of air pollution and noise pollution due to traffic. **(08 Marks)**

Module-5

9 a. Explain the importance and application of ITS in traffic engineering. **(08 Marks)**

b. Discuss briefly the principle behind road pricing and the requirement of a good pricing system. **(08 Marks)**

OR

10 Write a note on :

a. Restriction on turning movements

b. One way streets

c. Tidal flow operation

d. Closing side – streets. **(16 Marks)**

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