CBCS SCHEME

USN | | | | | | | | | |

15CV561

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021
Traffic Engineering

Time: 3 hrs. Max. Marks: 80

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Assume missing data, if any suitably.

Module-1

1 a. Describe the different static characteristics of vehicles that effect road design and traffic performance. **(08 Marks)**

b. Enumerate the urban traffic problems in India. **(04 Marks)**

c. Explain modal integration. **(04 Marks)**

OR

2 a. A passenger car weighing 10kN is required to accelerate at a rate of 2 m/sec^2 in the first gear from a speed of 10kmph to 20kmph. The gradient is +2 percent and the road has a WBM surface in good condition. Frontal projection of the area of car is 2.15m^2. Car tyres have radius of 0.33m. The rear axle gear ratio is 3.82:1 and the first gear ratio is 2.78:1. Calculate the engine horse power needed and the speed of the engine. Make suitable assumptions. Coefficient of air resistance = 0.39, coefficient of rolling resistance = 0.025, tyre deformation factor = 0.945, transmission efficiency = 0.90. **(08 Marks)**

b. Explain briefly sustainable approach of land use and transport related to traffic planning. **(08 Marks)**

Module-2

3 a. What is 30th highest hourly volume? Explain its importance with a neat sketch. **(08 Marks)**

b. The table below gives the consolidated data of spot speed studies on a section of a road. Determine the most preferred speed at which maximum proportion of vehicles travels.

Speed range kmph	No. of speed observations	Speed range kmph	No. of speed observations
0-10	0	50-60	216
10-20	11	60-70	68
20-30	30	70-80	24
30-40	105	80-90	0
40-50	233		

(08 Marks)

OR

4 a. A vehicle of weigh 2.0 tonne. Skids through a distance equal to 40m before colliding with another parked vehicle of weight 1.0 tonne. After collision both the vehicle skids through a distance equal to 12m before stopping. Compute the initial speed of the moving vehicle. Assume average coefficient of friction as 0.50. **(06 Marks)**

b. Explain various forms of presenting O and D data. **(06 Marks)**

c. List the objectives of carrying out parking studies. **(04 Marks)**

Module-3

5 a. Briefly explain the design factors of rotary intersection with neat sketch. (08 Marks)
b. Mention the various measures adopted to increase the safety of pedestrians. (08 Marks)

OR

6 a. Write a short note on the following:
i) Signal coordination
ii) Road markings. (08 Marks)
b. What is channelization? Briefly explain the purpose of channelization. (08 Marks)

Module-4

7 a. Briefly explain the effect of traffic noise on the environment. (08 Marks)
b. Explain the various characteristics considered in judging the efficiency of a transport mode. (08 Marks)

OR

8 a. Explain the different measures adopted to control air pollution created by road traffic. (08 Marks)
b. Explain how to promote non-motorized transport in a country, indicating its advantages. (08 Marks)

Module-5

9 a. Define intelligent transport system. Brief out its application in traffic engineering field. (08 Marks)
b. What do you mean by "area traffic control"? Mention its objectives, indicating the types of methods adopted in traffic control. (08 Marks)

OR

10 Define transportation system management. Mention the various well-known traffic management measures. Explain any two traffic management measures in detail. (16 Marks)

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