CBCS SCHEME

USN | | | | | | | | | |

17CV561

Fifth Semester B.E. Degree Examination, Aug./Sept. 2020
Traffic Engineering

Time: 3 hrs. Max. Marks: 100

Note: ***Answer any FIVE full questions, choosing ONE full question from each module.***

Module-1

1 a. List and explain Road our characteristics. **(10 Marks)**

b. Discuss various urban traffic problems that India is facing and give some remedial measures for their problems. **(10 Marks)**

OR

2 a. Explain PIEV theory with neat sketch and reaction time of the driver. **(10 Marks)**

b. A passenger car weighing 2 tonnes is required to accelerate at a rate of 3 m/sec^2 in the first gear from a speed of 10 kmph. The gradient is 1% and the road has black topped surface. The frontal projected area of car is 2m^2. The 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 speed of engine. Make suitable assumption. **(10 Marks)**

Module-2

3 a. Determine :

i) The upper and lower speed limit

ii) The design speed for the following spot speed studies data : **(10 Marks)**

Speed range (km ph)	Number of vehicles observed	Speed arrange (km ph)	Number of vehicles observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	43
30 to 40	89	80 to 90	33
40 to 50	204	90 to 100	09

b. Explain the relationship between speed, density and flow. **(10 Marks)**

OR

4 a. Explain the various methods of conducting OD studies. **(10 Marks)**

b. A vehicle of 2 to tones skids through a distances equal to 40m before colliding with another parked vehicle of weight 1 tonne. After collection both the vehicles skids through a distances equal to 12m before stopping. Compute the speeds of the vehicles before, after and at collision. **(10 Marks)**

Module-3

5 a. Design Rotary interaction element with neat sketch. **(10 Marks)**

b. Explain the type of grade separated interchange with neat sketch. **(10 Marks)**

OR

6 a. 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 and 1000 PCpU per hour respectively. The all red time required for pedestrian crossing is 12 sec. Design two phase traffic signal with pedestrian crossing by Webster's method. **(10 Marks)**

b. Explain types of parking facility. (10 Marks)

Module-4

7 a. Explain the factors to be considered for design of road lighting. (10 Marks)
b. Explain the factor that causes accidents. (10 Marks)

OR

8 a. Explain the detrimental effect of traffic noise and also explain the technique available to control the traffic noise. (10 Marks)
b. Explain the various measures of decrease the accident rates. (10 Marks)

Module-5

9 a. Define Travel Demand Management (TDM) and explain management measures. (10 Marks)
b. Explain the type of traffic signs as per IRC. (10 Marks)

OR

10 Write a short note on :
a. Level of Service
b. Road Marking
c. Traffic volume
d. Congestion pricing. (20 Marks)

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