17CV561

USN

Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024
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. Discuss the road user characteristics in detail. **(10 Marks)**
   b. Define Traffic Engineering. What are the objectives of traffic engineering? Also explain the scope of Traffic Engineering. **(10 Marks)**

OR

2 a. Derive an expression for flow and concentration using Green-Shield theory. **(10 Marks)**
   b. Explain urban traffic problems and measure to meet the problems. **(10 Marks)**

Module-2

3 a. Define the term spot speed study. With a neat sketch explain Enoscope method of measuring spot speed study. **(10 Marks)**
   b. The sport speed studies were carried out at a certain sketch of a road highway and consolidated data collected are given below :

Speed Range in Kmph	Number of vehicle observed	Speed Range in Kmph	Number of vehicle observed
0 to 10	12	50 to 60	255
10 to 20	18	60 to 70	119
20 to 30	68	70 to 80	53
30 to 40	89	80 to 90	23
40 to 50	204	90 to 100	9

Determine : i) Upper and Lower values of speed limit for regulation   ii) Design speed to checking Geometric speed of highway. **(10 Marks)**

OR

4 a. Explain concept of Level of Service (LOS) and its application, also list the factors affecting Level of Service (LOS). **(10 Marks)**
   b. A vehicle of weight 3000Kg skids through 50m before colliding with a parked vehicle of weight 1250kg. After collision, both the vehicles skid through 18m before coming to a halt. Assuming coefficient of friction as 0.5, explain the steps and calculate the following :
   i) Speed after collision ii) Speed before collision   iii) Speed at which heavier vehicle was moving initially. **(10 Marks)**

Module-3

5 a. Explain the design factors to be considered for the design of rotary intersection. What are the advantages of Rotary intersection? **(10 Marks)**
   b. Mention various classifications of traffic signs. Explain with 3 examples for each with neat sketches. **(10 Marks)**

OR

6 a. At right angled intersection of two roads, Road-1 has four lanes with a total width of 12.0m and Road – 2 has two lanes with a total width of 6.6m. The volume of traffic approaching the intersection during design hour are 900 and 743 PCU/hour on the two approaches of Road – 1 and 278 and 180PCU/hour on the two approaches of Road – 2. Design the signal timings as per IRC guidelines.   **(10 Marks)**

   b. Write a short note on :
      i) Variable Massage Signs (VMS)
      ii) Channelized Intersection   **(10 Marks)**

Module-4

7 a. Describe the causes of Road accidents and also suggest preventive measures to control accidents.   **(10 Marks)**

   b. Explain the arrangement of street lighting in urban areas and show the lighting arrangement sketch for signalized and Rotary intersection.   **(10 Marks)**

OR

8 a. Explain the benefits and promotion of non-motorized transport.   **(10 Marks)**

   b. Explain the measure to control the traffic noise.   **(10 Marks)**

Module-5

9 a. List and explain the various phases of traffic regulation.   **(10 Marks)**

   b. Explain applications of Intelligent Transport System (ITS).   **(10 Marks)**

OR

10 a. What are the advantage and disadvantages of one-way streets?   **(10 Marks)**

   b. Explain parking pricing and congestion pricing methods to control traffic management.   **(10 Marks)**

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