

**320750(20)**

**B. E. (Seventh Semester) Examination, April-May 2020/**

**NOV-DEC 2020**

**(New Scheme)**

**(Civil Engg. Branch)**

**TRAFFIC ENGINEERING**

*Time Allowed : Three hours*

*Maximum Marks : 80*

*Minimum Pass Marks : 28*

*Note : Part (a) from each question is compulsory.*

*Attempt any two from (b), (c) and (d).*

**Unit-I**

1. (a) Explain the term PCU.

2

[ 2 ]

- (b) Discuss the measure for operation of traffic and discuss in brief the function of traffic engineering. 7
- (c) Discuss various problems which the people face due to mixed traffic in India. 7
- (d) Describe the concept of 3E's used in traffic engineering in details. 7

### Unit-II

2. (a) Define "Traffic density." 2
- (b) What are 'Accident Studies'? Explain its objectives. 7
- (c) Explain briefly the various aspects investigated during parking studies. What are the uses of these studies. 7
- (d) Spot speed studies were carried out at a certain sketch of a highway and the consolidated data collected are given below :

Speed range, kmph	No. of vehicles observed
0 to 10	12
10 to 20	18
20 to 30	68
30 to 40	89
40 to 50	204

320750(20)

[ 3 ]

50 to 60	255
60 to 70	119
70 to 80	43
80 to 90	33
90 to 100	09

Determine :

- (i) the upper and lower values or speed limits for regulation of mixed traffic flow, and
- (ii) the design speed for checking the geometric design elements of the highway.

### Unit-III

3. (a) What is "High Mast Lighting"? 2
- (b) Explain the various types of traffic signals and their functions. How are the signal timing decided? 7
- (c) What are the various types of traffic markings commonly used? What are the uses of each? 7
- (d) Write the design steps of isolated traffic signals by IRC method. 7

### Unit-IV

320750(20)

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4. (a) What do you mean by cost analysis of an accident? 2
- (b) Design a street lighting system for the following conditions :
- |                 |            |
|-----------------|------------|
| Street width    | 15 m       |
| Mounting height | 7.5 m      |
| Lamp size       | 6000 lumen |
| Luminaire type  | II         |
- Calculate the spacing between lighting units to produce average  $L_{ux} = 6.0$ . 7
- Take coefficient of utilisation = 0.44.
- (c) With neat sketches show various types of traffic signs, classifying them in proper groups. 7
- (d) Explain the various design factors in highway lighting. 7

### Unit-V

5. (a) Write few characteristics desirable for road side trees. 2
- (b) Discuss the mitigative methods suggested by IRC for healthy environment along roads and streets. 7
- (c) What are the major pollutants emitted by automobiles? Discuss its effects and its measures. 7
- (d) What is arboriculture? What is its objectives? 7