

Code: CE5T5

**III B.Tech - I Semester – Regular/Supplementary Examinations  
March 2021**

**TRANSPORTATION ENGINEERING - I  
(CIVIL ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

**PART – A**

Answer *all* the questions. All questions carry equal marks

11x 2 = 22 M

1.

- a) Discuss about key map and index map.
- b) Write any two salient features of Jayakar committee
- c) Explain the importance of mechanical widening of the pavement?
- d) Sketch the typical cross section of a road in embankment and label all the cross sectional elements.
- e) Explain the need of pavement marking?
- f) Draw a neat sketch of cloverleaf interchange.
- g) List out the different tests to be performed for viscosity grading.
- h) Explain the difference between prime coat and tack coat.
- i) Explain the need of soil stabilization.
- j) Write down the limitations of group index method of pavement design.

k) What are the different causes of traffic accident? Discuss briefly.

PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Compare the highlights of 1st, 2nd, and 3rd twenty year road plans? 8 M
- b) Briefly outline the main feature of various road patterns commonly used along with their neat sketches. 8 M
3. a) Demonstrate the procedure for determining total reaction time of the driver? And, derive the equation for stopping sight distance? 8 M
- b) Illustrate the procedure for conducting the speed study using Enoscope and how to determine the speed limits from the data collected? 8 M
4. a) What is rotary intersection? List out the advantages and disadvantages of rotary intersection. 8 M
- b) Explain the test procedure for determining California Bearing Ratio value of soil? 8 M

5. a) The following data was surveyed on a two lane single carriage way, initial traffic in both directions = 5000 CV/day, estimated time for completion of construction = 2 years, traffic growth rate = 7 %, vehicle damage factor = 4.0, Determine the cumulative number of standard axles to be carried during 10 years and 15 years of the design life. 8 M
- b) Briefly outline the IRC recommendations for determining the thickness of the cement concrete pavements? 8 M
6. a) Enumerate the steps involved in the construction of water bound macadam road along with its specifications. 8 M
- b) Explain the principle, scope, and factors affecting the properties of soil-lime stabilization. 8 M