

Code: CE5T5

**III B.Tech - I Semester – Regular/Supplementary Examinations
October 2017**

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

Duration: 3 hours

Max. Marks: 70

PART – A

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

11 x 2 = 22 M

1.

- a) Explain the necessity and objects of highway planning.
- b) What are the various requirements of an ideal highway alignment? Discuss briefly.
- c) What are the factors on which the stopping sight distance depends? Explain briefly.
- d) Derive an expression for finding the stopping sight distance at level and grades.
- e) State factors on which the overtaking sight distance depends. Explain briefly.
- f) Explain origin and destination study. What are the various uses of O&D studies?
- g) Explain traffic capacity, basic capacity, possible capacity and practical capacity.
- h) What are the different causes of traffic accident? Discuss briefly.

- i) Explain group index method of pavement design. What are the limitations of this method?
- j) Explain the CBR method of pavement design. How is this method useful to determine the thickness of component layers?
- k) Briefly list the method of construction of gravel roads.

PART – B

Answer any **THREE** questions. All questions carry equal marks.
3 x 16 = 48 M

- 2.a) Briefly explain Importance of roads in India and characteristics of road transport. 8 M
- b) Explain important factors which control the geometric design elements. 8 M
- 3.a) Design the rate of super elevation for a horizontal highway curve of radius 600 m and speed 200 kmph. 8 M
- b) Calculate the safe overtaking sight distance for a speed of 70 kmph. Assume all other necessary data. 8 M
- 4.a) What are the various types of traffic markings commonly used? What are the uses of each? 8 M
- b) Explain CBR and the test procedure in laboratory. How are the results of the test obtained and integrated. 8 M

- 5.a) Discuss the effects of repeated applications of loads on pavements. Explain equivalent wheel load factor for repetition of different loads. 8 M
- b) What are the steps for the thickness design of rigid pavement as per IRC Guide lines? 8 M
- 6.a) List the requirements and specifications of cement concrete road construction. 8 M
- b) Discuss the scope and principles of soil – cement stabilization. 8 M