

B.Tech III Year II Semester (R15) Regular Examinations May/June 2018

TRANSPORTATION ENGINEERING – I

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

PART – A
(Compulsory Question)

1 Answer the following: (10 X 02 = 20 Marks)

- (a) Explain briefly about star and grid pattern of road network.
- (b) What are the different phases of highway engineering?
- (c) What are the factors to be considered for providing camber?
- (d) Discuss about grade compensation and critical length of grade in highways.
- (e) Explain the use of 30th hourly volume.
- (f) The time for covering a stretch of 200 m by ten vehicles in seconds are 12, 11, 13, 14.3, 15.5, 12.5, 12, 1.2, 14.1 and 13.6. Compute time mean speed and space mean speeds.
- (g) What should be the criteria for selecting width of weaving section in rotary design as per IRC?
- (h) What are the advantages of one way traffic?
- (i) Explain the functionality of dowel bars in rigid pavements.
- (j) List out the parameters required for computing Group Index of a soil.

PART – B
(Answer all five units, 5 X 10 = 50 Marks)**UNIT – I**

- 2 (a) Explain the functional classification of highways.
- (b) Explain the role of reconnaissance survey in finalizing highway alignment.

OR

- 3 What are the guide lines given by third road development plan for finalizing different types of highways?

UNIT – II

- 4 Design the length of a horizontal transition curve for a two lane National highway having a radius of 300 m and for a design speed of 100 kmph for a rolling terrain. The average length of rigid base of vehicle is considered as 6 m. Take coefficient of lateral friction 0.38.

OR

- 5 Derive an expression for extra widening on highway curves and also explain method of introducing extra widening.

UNIT – III

- 6 Explain briefly about various O-D studies and the importance of desire lines.

OR

- 7 What is level of service and give the factors influencing level of service?

UNIT – IV

- 8 Explain the advantages and disadvantages of grade separated intersection.

OR

- 9 What are the different corrections to be applied in estimating rotary capacity?

UNIT – V

- 10 Explain the functionality of various layers in flexible pavements.

OR

- 11 Discuss about the critical combination of stresses to be considered in the design of rigid pavements.
