

B.Tech III Year II Semester (R13) Supplementary Examinations December 2016

TRANSPORTATION ENGINEERING – I

(Civil Engineering)

Time: 3 hours

Max. Marks: 70

PART – A

(Compulsory Question)

- 1 Answer the following: (10 X 02 = 20 Marks)
- What is the classification of roads based on Nagpur Road Plan?
 - What are the three recommendations of Jayakar Committee?
 - Name any four highway cross-sectional elements
 - Differentiate between stopping sight distance and overtaking sight distance.
 - Draw the inter-relation curve between speed and density.
 - Give the classification of road markings?
 - Mention any three types of grade separated intersections.
 - What are the different design factors in a Rotary Design?
 - Draw a cross section of flexible pavement showing different layers.
 - What are warping stresses?

PART – B

(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

- 2 What is highway alignment? With the help of neat diagrams, explain the role of obligatory points in highway alignment with neat diagrams.

OR

- 3 What are the details to be collected as a part of Engineering studies? Explain.

UNIT – II

- 4 Define Overtaking Sight Distance. Using a neat diagram, derive an expression for computing the OSD on a two lane two way road and bring out the various components involved

OR

- 5 Giving the analysis of various forces acting on a vehicle moving over a section of a horizontal curve with super elevation, derive an expression for the rate of super elevation.

UNIT – III

- 6 (a) Describe the manual method of traffic counts.
(b) What are the objectives and uses of Traffic Volumes studies?

OR

- 7 (a) Give the classification of Traffic Signs. Also explain their specifications giving examples for each type of sign.
(b) Mention the different steps involved in the design of an isolated fixed time signal.

UNIT – IV

- 8 (a) What are the objectives of channelization? Explain with the help of neat sketches.
(b) Differentiate between channelized and unchannelized intersections. Give a diagram of a typical channelized T intersection.

OR

- 9 What are the various geometric design features of a rotary intersection? Explain them by making use of neat sketches.

UNIT – V

- 10 (a) What are the assumptions made by Westergaard in the analysis of rigid pavements? With the help of neat sketches explain the critical loading positions suggested by Westergaard.
(b) What are the critical stresses in Rigid Pavements as per Westergaard's analysis?
- 11 (a) Explain the factors influencing highway pavement design.
(b) What are the steps involved in Flexible Pavement Design by IRC method?
