

B. E. CONSTRUCTION ENGINEERING 3RD YEAR 2ND SEMESTER - 2017

Subject **TRANSPORTATION ENGINEERING**

Time : Three hours

Full Marks : 100

Assume relevant data if required.

Answer any four questions.

Q-1. Write notes on the following

(a) SSD (b) OSD (c) Grade compensation (d) Shoulder (e) Camber (5 X 5= 25)

Q-2 (a) Describe the significance of ROW and Control line in geometric design of road. (7)

(b) Calculate the length of the transition curve for a road in plain terrain with the following data :

Design speed = 80 kmph, Radius of curve = 900 m. Width of the pavement = 7.5 m.

Use both the method i.e rate of change of radial acceleration and rate of change of super elevation. (18)

Q-3(a) Calculate the maximum permissible speed on a horizontal curve with radius 130 m of a highway designed for a speed of 70 kmph to carry mix traffic. (8)

(b) Explain the significance of running speed and journey speed in speed delay survey. (10)

© Describe the factors on which congestion of road depends significantly. (7)

Q-4(a) List out various types of gauges prevailing in India with their gauge width. (6)

(b) What are the components in a permanent way? (6)

© Discuss the necessity and effects of coning of wheels (6)

(d) Specify the functions of the rail. Describe different types of rails in use. (7)

Q-5(a) Discuss the factors on which sleeper density depends. (6)

(b) How is sleeper density expressed? (3)

© Discuss various types of sleepers in use. (6)

(d) What is ballast? Why it is used in railway tracks? Briefly explain various types of ballast. (10)