Code: 13A01605

R13

B.Tech III Year II Semester (R13) Regular Examinations May/June 2016

TRANSPORTATION ENGINEERING – I

(Civil Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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

(a) How highways help in the economic development of a nation?
(b) Give the hierarchy of Roads in Rural and urban scenarios.
(c) What factors influence SSD and how they influence?
(d) What is the need for extra widening in a horizontal curve?
(e) What is the relationship between Flow and Density?
(f) Define 'Optimum Cycle Time' used in Signal Design by Webster method.
(g) Define "Channelization".
(h) What is the main concept of Rotary Intersection?
(i) What is the function of sub grade in a pavement structure?
(j) What is modulus of sub grade reaction?

PART – B

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

UNIT – I

2 What are the salient features of Nagpur Road Development Plan?

OR

3 What are the factors affecting Highway alignment? Discuss about obligatory points.

UNIT – II

4 Define Overtaking Sight Distance. Explaining the process of overtaking on a two lane two way road and derive an expression for computing OSD.

OR

5 A National Highway is to be designed for a speed of 90 kmph. The highway is of two lanes and is passing through a level terrain. A horizontal curve of 325 m radius is proposed at a location and the super elevation is to be provided by rotating the pavement about the centre line. The rate of introduction of super elevation is 1 in 120. Compute the length of transition curve needed.

UNIT – III

6 What are the objectives of Traffic Volume studies? What are the methods of presentation of Volume Data?

OR

7 How a road user can be a cause of accident? Discuss.

UNIT – IV

8 How traffic can be controlled and regulated at intersection by traffic islands? Support your answer with neat diagrams.

OR

9 What are the various types of Grade Separated interchanges possible? Show their layouts and indicate traffic movements on them.

UNIT – V

10 Explain the differences between Flexible Pavements and rigid Pavements.

OR

11 What are the different types of stresses expected in rigid pavements and how they have to be taken care of in design? Discuss.

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