R13

B.Tech III Year II Semester (R13) Regular & Supplementary Examinations May/June 2017
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)   What are Javakar committee recommendations?
   (b)   What are the requirements of good alignment?
   (c)   Define stopping sight distance and intermediate sight distance.
   (d)   What is the need for transition curve in a horizontal alignment?
   (e)   What is the relationship between speed and density?
   (f)   Define 'saturation flow' used in signal design by Webster method.
   (g)   What are the conflicts that occur at intersect ions?
   (h)   What is weaving movement?
   (i)   What is the difference in stress distribution in flexible pavements and rigid pavements?
   (j)   What is radius of relative stiffness?

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

UNIT – I

2   What are the time salient features of Bombay Road Development Plan? In what aspects it differs from Nagpur Road Development Plan?

OR

3   What are obligatory points? How they influence a change in the alignment? Support your answer with neat diagrams.

UNIT – II

4   Why super elevation is required on a horizontal curve? Cleary analyze the various forces acting on a body of a vehicle moving on a super elevated section of a horizontal curve, derive an equation for the rate of super elevation 'e'.

OR

5   A National highway is to be designed for a speed of 100 kmph. The highway is of two lanes and is passing through a level terrain. A horizontal curve of 350 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 speed studies? What are the methods of presentation of speed data?

OR

7   Discuss about various Engineering measures that can help in reducing time accident rate.

UNIT – IV

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

OR

9   What are the various design elements of a rotary intersection? What are their design specifications? Support our answer with neat diagrams.

UNIT – V

10   (a)   What factors play a crucial role in pavement design? Explain.
     (b)   What are the different layers normally designed in flexible pavements? What are the functions of these layers? Explain.

OR

11   (a)   Explain Westergaard theory about critical stresses in rigid pavements.
     (b)   Explain about Warping stresses in rigid pavements.

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