No. of Printed Pages : 3

BICE-020

01491

B.Tech. (Civil Engg.)
BTCLEVI
Term-End Examination
December, 2013

BICE-020 : TRANSPORTATION ENGG. II

Time : 3 Hours *Maximum Marks : 70*

Note : *Attempt **any seven** questions. All questions carry **equal** marks.*

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1. (a) What are the classification of roads as per Nagpur Road plan ? **5**

(b) Explain the steps for executing a new highway project. **5**

2. Explain the various initial surveys to be carried out for the highway project. **10**

3. (a) Calculate the extra widening required for a pavement of width 7m on a horizontal curve of radius 250m if the longest wheel base of vehicle expected on the road is 7.0m. Assume, design speed is 70kmph. **5**

(b) Write the functions of transition curves in the horizontal alignment. Enumerate the types of transition curves. **5**

4. (a) Discuss the conditions for designing of sight distance at intersections. 5

(b) The radius of a horizontal circular curve is 100m. The design speed is 50kmph and the design coefficient of lateral friction is 0.15. Calculate the super elevation required if full lateral friction is assumed to develop. 5

5. Describe the various factors to be considered for the design of pavements. 10

6. Determine the spacing between contraction joints for 3.5 meter slab width having thickness of 20 cm and f = 1.5, for the following two cases : 10

(a) for plain cement concrete, allowable $S_c = 0.8$ kg/cm^2.

(b) for reinforcement cement concrete, 1.0cm dia bars at 3.0 m spacing.

7. (a) Explain the factors which affect road user characteristics. 5

(b) Explain the applications of O and D studies. 5

8. (a) Explain the factors that affect the practical capacity of a traffic lane. 5

(b) Discuss the factors that affecting PCU values. 5

9. (a) Explain the Benefit Cost Method for the economic evaluation of highway projects. 5

(b) Write the purposes to provide trees on both sides of urban and rural road. 5

10. Write short notes on **any two** of the following : **5x2=10**

(a) Sketch of flexible pavement cross-section

(b) Annual highway cost

(c) Properties of Road Aggregates

(d) Vehicle operation cost