

**B.Tech. CIVIL ENGINEERING (BTCLEVI)**

**Term-End Examination**

**June, 2017**

00463

**BICE-020(S) : TRANSPORTATION ENGINEERING – II**

*Time : 3 hours*

*Maximum Marks : 70*

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**Note :** Attempt any **five** questions. Use of scientific calculator is permitted.

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1. (a) Describe in brief the benefits from highway improvement. 7
- (b) Discuss the principles of highway planning. 7
2. (a) What are the factors that are considered to select the alignment of roads in plains as well as in hilly terrain ? 7
- (b) Explain how 'vehicle speed' and 'ruling gradient' influence the design of a highway. 7
3. (a) Calculate the stopping sight distance for a road for which the design speed is 40 kmph, brake efficiency is 40% and the reaction time of the driver may be taken as 3 seconds. 7
- (b) What is meant by superelevation ? Why is it considered essential for modern traffic ? 7

4. (a) What is meant by a transition curve ?  
Where and why is it provided ? 7
- (b) A descending gradient of 1 in 25 meets an ascending gradient of 1 in 30. Calculate the length of valley curve. Assume the design speed for highway as 60 kmph. 7
5. (a) Differentiate between flexible and rigid pavements. Enumerate the various factors to be accounted, for the selection of type of pavement. 7
- (b) Describe in brief Westergaard's theory for load stresses. 7
6. (a) Describe in brief the use of any two categories of road signs and sketch the typical sign of each category. 7
- (b) Discuss the purpose and advantages of providing traffic signals on roads. 7
7. Write short notes on any *two* of the following :  $2 \times 7 = 14$
- (a) Use of Photographic Techniques in Traffic Engineering
- (b) Water Bound Macadam Roads
- (c) Economic Evaluation of Transportation Plans
- (d) Nagpur Plan of Highway Development