Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–V • EXAMINATION – SUMMER 2013

Subject Code: 150601   **Date: 14-05-2013**

Subject Name: Highway Engineering

Time: 10.30 am - 01.00 pm   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Explain the objects of highway planning. State the basic principles of planning to meet the objectives. **07**

(b) State to explain the general points which need to be considered for ideal location of bridges. **07**

Q.2 **(a)** Calculate the maximum permissible speed on a horizontal curve of radius 125 m of a highway designed for a speed of 65 km/hr to carry mixed traffic, if the super elevation is not too exceed 7 percent. **07**

(b) Discuss the factors to be considered in deciding the sight distance at intersection. **07**

OR

(b) Explain with the aid of neat sketches the methods of eliminating camber and introduction of super elevation. **07**

Q.3 **(a)** Discuss the need for off-street parking. Explain briefly the types of off-street parking facilities. **07**

(b) What are the various types of traffic markings commonly used? What are the uses of each? **07**

OR

Q.3 **(a)** Explain various measures for the reduction in accident rates. **07**

(b) Indicate how the traffic volume data are presented and the results used in traffic engineering. **07**

Q.4 **(a)** Define cutback bitumen. State different types of cutbacks. When are these used? Enlist the tests carried out on cutback bitumen. **07**

(b) State the stepwise method of construction of gravel road. **07**

OR

Q.4 **(a)** Explain the plate bearing test procedure carried out on subgrade soil. **07**

(b) State the necessity of maintenance of roads. Explain briefly the classification of maintenance operation. **07**

Q.5 **(a)** What is a land slide and how it occurs on hill roads? State how prevention of land slide can be done. **07**

(b) State the difference between road safety reviews and road safety audit. **07**

OR

Q.5 **(a)** Define catch water drain. State the functions of it with neat labeled sketch in hilly areas. **07**

(b) Discuss the important factors which are to be considered in the design of highway lighting. **07**

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