

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VI • EXAMINATION – WINTER • 2014**

**Subject Code: X50601**

**Date: 29-11-2014**

**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 (1) Indian Road Congress (2) Indian Motor Vehicle act. **07**  
(b) What are the factors affecting alignments of road? Explain in detail. **07**
- Q.2** (a) What is the necessity of cross slope? Draw the sketch of shapes of cross slopes. **07**  
(b) Explain ruling, maximum and exceptional gradient. **07**
- OR**
- (b) A national highway passing through plain and rolling areas. Design super elevation for the given conditions: **07**  
(1) For plain terrain: Ruling design speed=80kmph and horizontal curve radius=215m.  
(2) For rolling terrain: Ruling design speed=80kmph and horizontal curve radius=300m.
- Q.3** (a) Draw the fully dimensioned sketch of national highway in embankment. **07**  
(b) Give the index properties of soil. **07**
- OR**
- Q.3** (a) Write a short note on “Los Angeles Abrasion test” **07**  
(b) Explain the methodology of constructing cement concrete roads. **07**
- Q.4** (a) What are the applications of origin and destination studies? **07**  
(b) Explain the significance of PPP models. **07**
- OR**
- Q.4** (a) What is the necessity of parking space in urban area? Draw the sketch of angular parking. **07**  
(b) What are the desirable characteristics of road side tree plantations? **07**
- Q.5** (a) Explain various types of intersection at grade with sketch. **07**  
(b) Define traffic volume count. Describe procedure of traffic volume count. **07**
- OR**
- Q.5** (a) Draw the sketch of : **07**  
(1) Regulatory sign board (2) Warning sign board with dimensions.  
(b) State the advantages and dis-advantages of traffic signal. **07**

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