Date: 19/05/2016

**Total Marks: 70** 

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-V- EXAMINATION – SUMMER 2016** 

Subject Code: 150601

Subject Name: Highway Engineering

Time: 02:30 PM to 05:00 PM

## Instructions:

- 1. Attempt all questions.
- 2. Make suitable assumptions wherever necessary.
- 3. Figures to the right indicate full marks.
- 0.1 Define highway alignment. Discuss briefly the basic requirements of an ideal 07 (a) road alignment. 07
  - Explain the necessity and objects of highway planning. **(b)**
- What are the objects of providing transition curves on the horizontal alignment Q.2 07 (a) highways? Explain it.
  - The design speed of a highway is 80 kmph. There is a horizontal curve of radius 07 **(b)** 200 m on a certain locality. Calculate the superelevation needed to maintain this speed. If the max superelevation on this horizontal curve as it is not possible to increase the radius. Safe limit of transverse coefficient of friction is 0.15.

## OR

Calculating the extra width of pavement required on a horizontal curve of radius 07 **(b)** 700m on a two lane highway, the design speed being 80 kmph. Assume wheel base l=6m.

<ul> <li>(b) What are advantages and Disadvantages of Bituminous roads?</li> <li>OR</li> <li>Q.3 (a) State the procedure adopted for the construction of the Earth road.</li> <li>(b) Distinguish between rigid and flexible pavement</li> </ul>	
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	07
	07
<b>Q.4</b> (a) Explain longitudinal drains with neat sketch.	07
(b) Define land slide. State its types and its causes.	07
OR	
Q.4 (a) State the various operations for planting of trees on road side development.	07
(b) Explain in detail the PPP model of highway financing in India.	07
<b>Q.5</b> (a) State the advantages and disadvantages of traffic rotary.	07
(b) What are the advantages and disadvantages of traffic signals? Briefly explain	07
various types of traffic signals.	
OR	
<b>Q.5</b> (a) Explain Spot speed, Running speed and Journey speed. How the spot speed study is carried out?	07
(b) Explain the road user characteristics.	07

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