

Seat No.: _____
No. _____

Enrolment

GUJARAT TECHNOLOGICAL UNIVERSITY
PDDC SEMESTER- V • EXAMINATION – SUMMER 2015

Subject Code: X50601

Date: 07/05/2015

Subject Name: Highway Engineering

Time: 02:30 pm - 05:00 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) Define highway alignment. What are the requirements of ideal alignment of road? **07**
- (b) Explain the classification of roads based on location and function as suggested in the Nagpur Road Plan. **07**

- Q.2** (a) Write a short notes on : **07**
(1) Width of Carriageway
(2) Shoulders
- (b) Explain the PIEV theory and derive the expression for SSD at gradient $n\%$. **07**

OR

- (b) Calculate the superelevation required on a road curve of 240 m radius with mixed traffic conditions. The design speed is 80 km/hr. The coefficient of friction is 0.15. The road is passing through rolling terrain. **07**

- Q.3** (a) Give classification of soil according to Highway Research Board. **07**
- (b) The speed of overtaking and overtaken vehicles are 80 kmph and 60 kmph respectively. The acceleration of the overtaking vehicle is 2.5 kmph/sec^2 . Calculate safe overtaking sight distance for (i) One way traffic (ii) Two way traffic. **07**

OR

- Q.3** (a) Write a short note on CBR test. **07**
- (b) Write a short note on Ductility test on bitumen. **07**

- Q.4** (a) State the difference between road safety reviews and road safety audit. **07**
- (b) Write a short note on design of flexible pavement by California Bearing Ratio Method. **07**

OR

- Q.4** (a) Write a short note on causes of land slide. **07**
- (b) What are the importances of drainage? Explain any one method of subsurface drainage. **07**

- Q.5** (a) Describe Preventive measures of road accidents. **07**
- (b) Describe Arboriculture. **07**

OR

- Q.5** (a) Explain PPP mode in context to road administration. **07**
- (b) Explain road user characteristics. **07**
