

Seat No.: _____
No. _____

Enrolment

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – V (NEW) EXAMINATION – WINTER 2015

Subject Code: 2150601

Date: 17/12/ 2015

Subject Name: Highway Engineering

Time: 10:30am to 1:00pm

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) Describe Nagpur road plan with its salient features. **07**
(b) Write short note on **07**
(i) Central Road Research Institute (CRRI)
(ii) Central Road Fund (CRF).
- Q.2** (a) Explain briefly the various stages of work in a new highway project. **07**
(b) (i) Give IRC standard for carriageway width and formation width. **04**
(ii) Calculate the value of (i) Head light sight distance (ii) Intermediate sight distance for a highway with a design speed of 65 kmph. Take $t = 2.5\text{sec}$, $f = 0.36$ **03**
- OR**
- (b) Explain curve resistance and compensation in gradient on horizontal curves. **07**
- Q.3** (a) Explain Total reaction time of driver. Explain PIEV Theory. **07**
(b) Calculate the extra width of pavement required on a horizontal curve of radius 700 m on a two lane highway. The design speed being 80 kmph. Assume wheel base is 6 m. **07**
- OR**
- Q.3** (a) Explain desirable properties of bituminous mix. **07**
(b) Difference between flexible and Rigid pavement. **07**
- Q.4** (a) Explain Particle size classification as per IS. **07**
(b) Describe Plate load test with figure. **07**
- OR**
- Q.4** (a) List out various properties of aggregate. Explain flakiness and elongation index test of aggregate. **07**
(b) Explain subsurface drainage system with transverse drain with neat sketch. **07**
- Q.5** (a) Write short note on ESWL. **07**
(b) Explain various types of failures in Cement concrete pavements & their causes. **07**
- OR**
- Q.5** (a) Draw neat sketches (i) Clover leaf interchange (ii) Rotary Interchange (ii) Diamond Interchange. **07**
(b) Show the conflict point at the intersection of the following types **07**
(i) Cross roads, both two-way
(ii) Cross roads, one way
