Seat No.: _____ Enrolment No._____

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 (i) Central Road Research Institute(CRRI) (ii) Central Road Fund (CRF).	**07**
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 = 2.5sec, 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 (i) Cross roads, both two-way (ii) Cross roads, one way	**07**

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