Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–III • EXAMINATION – SUMMER 2013

Subject Code: X 30602 **Date: 13-05-2013**

Subject Name: Railway, Bridges and Tunnels

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)**	Draw neat sketches of c/s of permanent way, bull headed & flat footed rails.	**07**
	(b)	What are the advantages of uniformity of gauges in railway tracks? Explain in detail.	**07**
Q.2	**(a)**	Explain "coning of wheels" with neat sketch.	**07**
	(b)	Explain various rail failures with neat sketches.	**07**
		OR	
	(b)	What is super elevation? What is necessity of provision of super elevation on the curves of railway track?	**07**
Q.3	**(a)**	Discuss various factors which should be considered while selecting a site for a bridge.	**07**
	(b)	Give classification of bridges. Draw neat sketches of arch bridge and suspension bridge.	**07**
		OR	
Q.3	**(a)**	What are the data required for bridge design?	**07**
	(b)	Explain: (1) Afflux, (2) Scour depth, (3) Design flood	**07**
Q.4	**(a)**	Derive the formula for economic span of a bridge.	**07**
	(b)	Why artificial ventilation is necessary in tunnels? Explain mechanical ventilation of tunnels.	**07**
		OR	
Q.4	**(a)**	Differentiate between (a) 'Cut out bridge' *Vs* 'flying bridge', (b) 'Lift bridge' *Vs* 'swing bridge'	**07**
	(b)	Explain dust controlling methods in tunnel.	**07**
Q.5	**(a)**	Explain objects of tunnel lining.	**07**
	(b)	Give classification of tunnels.	**07**
		OR	
Q.5	**(a)**	Enlist different methods of tunneling in soft ground. Also explain any one method in detail.	**07**
	(b)	Enumerate advantages and disadvantages of tunnel compared to open cut.	**07**

****