Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–III • EXAMINATION – WINTER • 2014

Subject Code: X30602 **Date: 29-12-2014**

Subject Name: Railway, Bridges and Tunnels

Time: 10:30 am - 01:00 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)**	Write the components of Permanent way. What are the requirements of Ideal permanent way?	**07**
	(b)	Differentiate between flat footed rail and bull headed rail.	**07**
Q.2	**(a)**	Define creep. Explain Effects and causes of creep.	**07**
	(b)	Explain Coning of wheel with sketch.	**07**
		OR	
	(b)	Explain functions of sleepers. List the characteristics of good sleepers.	**07**
Q.3	**(a)**	Explain super elevation. Derive the formula for super elevation.	**07**
	(b)	List the various Empirical methods for flood estimation. Explain any One.	**07**
		OR	
Q.3	**(a)**	Explain crossings in detail.	**07**
	(b)	Explain economic span. Derive the formula for economic span	**07**
Q.4	**(a)**	Define: (1) Bridge, (2) Causeway, (3) Culvert, (4) Abutments, (5) Afflux, (6) Effective Span, (7) Headroom	**07**
	(b)	Enumerate various ideal bridge site characteristics.	**07**
		OR	
Q.4	**(a)**	Enumerate Merits and Demerits of tunneling.	**07**
	(b)	Classify the tunnels. Discuss shape of the tunnels.	**07**
Q.5	**(a)**	Explain the method to transfer the centerline inside of the tunnel with neat sketches.	**07**
	(b)	Explain Bridge bearings. Describe functions of bearings.	**07**
		OR	
Q.5	**(a)**	What are the various methods of tunneling in hard rock? Explain Drift method.	**07**
	(b)	Explain about arch bridges in detail with necessary sketches.	**07**

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