Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012

Subject code: 160603 **Date: 04/01/2013**

Subject Name: Railway, Bridge and Tunnel Engineering

Time: 02.30 pm - 05.00 pm **Total Marks: 70**

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain about loading and construction gauge with their uses.	**07**
	(b)	(i) Define : UIC-880-TISCO-V-1999-OB (ii) State basic requirements of an ideal alignment.	**03** **04**
Q.2	**(a)**	Discuss about methods of erection of various types of bridges in brief.	**07**
	(b)	Explain in brief: (i) Resistance to traction. (ii) Types of stations	**03** **04**
		OR	
	(b)	Explain in brief: (i) Marshalling yards. (ii) Concrete sleepers	**03** **04**
Q.3	**(a)**	Discuss about various types of gradients and grade compensation on curves.	**07**
	(b)	Discuss about causes and effects of creep. Also write measures to reduce creep.	**07**
		OR	
Q.3	**(a)**	Explain in brief with sketch diamond crossing and scissors crossover.	**07**
	(b)	What essential purposes are served by signaling and interlocking? Briefly describe semaphore signals.	**07**
Q.4	**(a)**	Explain in brief: (i) Strengthening of bridges. (ii) Bridge bearings	**03** **04**
	(b)	Explain about ideal bridge site characteristics.	**07**
		OR	
Q.4	**(a)**	Explain in brief: (i) Scour depth. (ii) Types of bridge superstructure.	**03** **04**
Q.4	**(b)**	Explain in brief: (i) Waterway (ii) Types of bridge substructure.	**03** **04**
Q.5	**(a)**	Enlist various methods of tunneling in soft ground. Explain needle beam method.	**07**
	(b)	Write classification of tunnels. Sketch various shapes of tunnels.	**07**
		OR	
Q.5	**(a)**	Enlist various methods of tunneling in hard rock. Explain any one in detail.	**07**
	(b)	Explain in brief: (i) Advantages of tunnel. (ii) Lighting and ventilation in tunnel.	**03** **04**

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