

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.

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

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