Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE – SEMESTER – VI EXAMINATION – WINTER 2015

Subject Code:160603 **Date:08/12/ 2015**

Subject Name: Railway, Bridge &Tunnel Engineering

Time:2:30pm to 5:00pm **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)**	Explain classification of railway lines in India based on maximum sanctioned speed criteria.	**07**
	(b)	What do you understand by mountain railways? Describe in brief the various types of alignment used for mountain railways.	**07**
Q.2	**(a)**	What do you understand by a railway track? State the requirements of an ideal railway track.	**07**
	(b)	State the advantages and disadvantages of wooden sleepers	**07**
		OR	
	(b)	Write a short note on CST-9 sleepers.	**07**
Q.3	**(a)**	Write a short note on scissors cross over.	**07**
	(b)	Explain briefly the various requirements of a passenger station yard.	**07**
		OR	
Q.3	**(a)**	Define ruling gradient, pusher gradient and momentum gradient. Also state the objectives for gradients.	**07**
	(b)	Give the classification of railway signals based on different characteristics with examples.	**07**
Q.4	**(a)**	Explain briefly bascule bridge? Mention the advantages especially over the swing bridge.	**07**
	(b)	State the purposes of proving bearings in a bridge and explain the important factors to be remembered in the design of a rocker and roller bearings.	**07**
		OR	
Q.4	**(a)**	Explain the term linear waterway, afflux and regim width. Also state the guiding principles which must be kept in mind while fixing waterway to ensure the safety of structure.	**07**
Q.4	**(b)**	State the order of erection of suspension bridge.	**07**
Q.5	**(a)**	Explain with neat sketch commonly adopted shape of tunnels.	**07**
	(b)	Explain the various operations involved in sinking the shaft in rock.	**07**
		OR	

Q.5	**(a)**	Discuss the details of sequence of operation of needle beam method.	**07**
	(b)	State the requirements of a ventilation system & explain in detail dust suppression.	**07**

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