Seat No.:	Enrolment No.

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER-III EXAMINATION - WINTER 2015

Subject Code:X30602 Date:21/12/2015

Subject Name: Railway Bridge and Tunnel

Time: 10:30pm to 01:00pm 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) (b)	Discuss the role played by Railways in overall development of a nation. What are the factors affecting the choice of a gauge?	07 07
Q.2	(a)	Calculate super elevation and maximum permissible speed for 3 degree curve on high speed B. G. section having maximum sanctioned speed of 110 KMPH. Assume the equilibrium speed as 80 KMPH, booked speed of goods train as 50 KMPH and G as 1750 mm.	07
	(b)	Define the followings	07
		(a) Ruling gradient (b) Pusher gradient (c) Momentum gradient(d) Compensated gradient for curvature.	
		OR	
	(b)	Describe with sketches Coning of wheels	07
Q.3	(a)	Explain with sketches: Dog spikes, C.I. Chair with spring keys.	07
	(b)	What is creep? How will you measure the creep? Explain.	07
		OR	
Q.3	(a)	What are the facility requirements of a railway station? Classify the railway stations. Draw a neat sketch of layout of any one type of station.	07
	(b)	What is railway crossing? Describe types of crossing with sketch.	07
Q.4	(a)	What are the requirements of an ideal bridge site?	07
	(b)	Explain in brief: (i) Strengthening of bridges. (ii) Bridge bearings OR	07
Q.4	(a)	Describe (i) Bascule bridge (ii) Cable stayed bridge	07
Ų.T	(b)	Explain in brief: (i) Scour depth. (ii) Afflux.	07
Q.5	(a)	Define Tunnel. Discuss shapes of tunnel with shape.	07
	(b)	Enlist various methods of tunneling in hard rock. Explain any one of them with sketches.	07
		OR	
Q.5	(a)	Enlist various methods of tunneling in soft ground. Explain needle beam method.	07
	(b)	Discuss about (i) Tunnel Lining and (ii) Lighting in Tunnels.	07
