

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER- V (New) EXAMINATION – WINTER 2019

Subject Code: 2154004

Date: 29/11/2019

Subject Name: Railway & Bridge Engineering

Time: 10:30 AM TO 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.

		MARKS
Q.1	(a) Give classification of bridges & requirements of ideal bridge.	03
	(b) Write a short note on Coning of wheels.	04
	(c) Explain various engineering surveys which are to be carried out for the choice of a route of a new railway line. Explain Reconnaissance survey in detail.	07
Q.2	(a) Draw neat sketch of Turnout & show its components.	03
	(b) Give requirements of ideal rail for the railway track.	04
	(c) Calculate the cant deficiency & permissible speed for a 4 degree curve on B.G track.	07
	OR	
	(c) A 6 degree Curve branches off from 3 degree main curve in opposite direction in the layout of B.G yard. If the speed of branch line is limited to 35.5kmph, what would be the maximum permissible speed after allowing maximum cant deficiency?	07
Q.3	(a) Explain Double headed rails in detail with neat sketch.	03
	(b) Explain:	04
	1) Gathering Lines.	
	2) Three throw switch.	
	(c) Explain wears of rail in detail & discuss methods adopted to reduce wears of rail.	07
	OR	
Q.3	(a) Give advantages and disadvantages of Concrete sleepers.	03
	(b) Explain Transition curve in detail.	04
	(c) Explain functions of Sleepers, Ballast & Spikes.	07
Q.4	(a) Define.	03
	1) Afflux.	
	2) Wing walls.	
	3) Economic span.	
	(b) Enlist characteristics for ideal bridge site.	04
	(c) Explain all the components of bridge with the help of side view and elevation.	07
	OR	
Q.4	(a) Write short note on skew bridge.	03
	(b) Explain different type of load forces & stresses which act on the bridges.	04
	(c) Draw sketch of following bridge.	07
	1) Suspension bridge.	
	2) Steel truss bridge.	
Q.5	(a) Give functions of Abutment	03
	(b) Explain function of bearings	04

- (c) How health monitoring of bridge is carried out? Explain NDT test in brief. 07

OR

- Q.5 (a) What is the purpose of inspection of bridge & give its necessity. 03
(b) Explain Deck, through and semi through bridge. 04
(c) Write Data that is to be collected for location of bridge site and explain the factors that affect the selection of a site for bridge. 07

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