

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (NEW) - EXAMINATION – SUMMER 2017

Subject Code: 2160603

Date: 03/05/2017

Subject Name: Railway, Bridge & Tunnel 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	Short Questions	14
	1 Define gauge. Enlist types of gauges used in India.	
	2 Draw a neat sketch showing components of railway track.	
	3 Explain term “Negative Super elevation”.	
	4 Define Signaling and Interlocking.	
	5 Classify railway station.	
	6 Which are the stages involved in construction of new railway line?	
	7 Write objectives of maintenance of railway track.	
	8 What are the causes of scouring?	
	9 Define : Afflux and Economic span	
	10 List out stresses acting on bridge	
	11 Explain rocker bearing with sketch.	
	12 Define Portal and Shaft.	
	13 Give tunnel classification briefly.	
	14 Which are the unfavorable conditions observed during tunnel construction?	
Q.2	(a) Write development of Indian Railways.	03
	(b) Discuss specification of Track ballast.	04
	(c) A 7 degrees curve branches off from a 3 degrees main curve in an opposite direction in the layout of a B.G. yard. If the speed restriction on main line is 60 kmph, what would be the speed restriction on branch line? Assuming permissible cant deficiency is 75 mm.	07
	OR	
	(c) A 8 degrees curve branches off from a 4 degrees main curve in an opposite direction in the layout of a M.G. yard. If the speed on the branch line is restricted to 30 kmph, determine the speed restricted on the main line.	07
Q.3	(a) Draw a sketch of turnout and explain its components.	03
	(b) Explain Track Drainage.	04
	(c) Explain different types of station yards.	07
	OR	
Q.3	(a) Which facilities are required at railway station?	03
	(b) Explain Mono rails and Metro rails.	04
	(c) Classify Railway signals in detail.	07
Q.4	(a) What do you understand by temporary and movable bridges?	03
	(b) Give classification of bridge based on super structure.	04
	(c) Discuss stages involved in bridge investigation.	07

OR

- | | | | |
|------------|------------|---|-----------|
| Q.4 | (a) | Discuss factors affecting site selection of bridge. | 03 |
| | (b) | Explain various defects in bridge. | 04 |
| | (c) | Write method of erection of steel girder bridges. | 07 |
| Q.5 | (a) | Draw sketch of different shapes of tunnel. | 03 |
| | (b) | Discuss components of bridges with neat sketch. | 04 |
| | (c) | Explain various methods of tunnel ventilation. | 07 |

OR

- | | | | |
|------------|------------|---|-----------|
| Q.5 | (a) | Write safety precautions in tunnel construction. | 03 |
| | (b) | Explain strengthening of bridges. | 04 |
| | (c) | Discuss any one method of tunneling in hard rock. | 07 |
