Enrollment No:	Exam Seat No:
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C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name: Railway, Bridge and Tunnel Engineering

Subject Code: 4TE06RBT1 Branch: B.Tech (Civil)

Semester: 6 Date: 07/05/2018 Time: 02:30 To 05:30 Marks: 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

		Attempt the following questions	— (14
Q-1			
	a)	Define gauge. Enlist types of gauges used in India.	(1)
	b)	Draw a neat sketch showing components of railway track.	(1)
	c)	Explain term "Negative Super elevation".	(1)
	d)	Define Signaling and Interlocking.	(1)
	e)	Classify railway station.	(1)
	f)	Which are the stages involved in construction of new railway line?	(1)
	g)	Write objectives of maintenance of railway track.	(1)
	h)	What are the causes of scouring?	(1)
	i)	Define : Afflux	(1)
	j)	Explain rocker bearing with sketch.	(1)
	k)	Give tunnel classification briefly.	(1)
	1)	List out stresses acting on bridge	(1)
	m)	Which are the unfavorable conditions observed during tunnel construction?	(1)
	n)	Define Portal and Shaft.	(1)
Atten	npt any f	four questions from Q-2 to Q-8	
Q-2		Attempt all questions	(14
	A)	Why drainage is necessary in tunnel? Discuss various drainage systems for tunnel.	(6)
	B)	What is creep? Discuss the theories propounded to explain probable causes of creep.	(5)
	C)	Draw sketch of different shapes of tunnel.	(3)
Q-3		Attempt all questions	(14
	A)	What is Ballast? Write Function and requirement of good ballast	(7)
	B)	Explain various methods of tunnel ventilation.	(4)
	C)	Discuss factors affecting site selection of bridge.	(3)
Q-4		Attempt all questions	(14
•	A)	Explain strengthening of bridges.	(3)
	B)	Explain semaphore signals and Colored light signals.	(7)
	$\overrightarrow{\mathbf{C}}$	Explain various types of spikes with neat sketches.	(4)



Q-5		Attempt all questions	(14)
	A)	What is 'economic span' of a bridge? Derive the expression for economic span of	(7)
		bridge.	
	B)	What are the various types of stresses induced in railway track? Explain each of them.	(7)
Q-6		Attempt all questions	(14)
	A)	A BG branch line track takes off as a contrary flexure through a 3° curve from 5° curve of main line. Due to turnout max. permissible speed on Main Line is 60 km/hr. Calculate Speed restriction on branch line, Assume permissible cant deficiency as 7.6	(7)
		cm.	
	B)	As a safety engineer suggest the safety measures is necessary while tunnel construction is going on.	(7)
Q-7		Attempt all questions	(14)
	A)	As an Executive engineer of R and B you have to select the site for bridge, enlist the factors which you keep in mind.	(7)
	B)	Write short note "Sleepers"	(7)
Q-8	ŕ	Attempt all questions	(14)
•	A)	Explain methods of tunneling in soft ground.	(7)
	B)	Write method of erection of steel girder bridges.	(7)

