

C.U. SHAH UNIVERSITY

Winter Examination-2021

Subject Name: Railway, Bridge and Tunnel Engineering

Subject Code: 4TE06RBT1

Branch: B.Tech (Civil)

Semester: 6

Date: 26/10/2021

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.
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Q-1	Attempt the following questions	(14)
	a) Draw a sketch of the expansion joint in bridge.	(1)
	b) Enlist the methods of tunneling in Rock.	(1)
	c) Define abutments.	(1)
	d) Define Shafts.	(1)
	e) What is the purpose for providing point and crossing?	(1)
	f) Define afflux.	(1)
	g) Draw a sketch of 'D' Section tunnel.	(1)
	h) What is the length of rail in B.G track?	(1)
	i) What is Uniformity of gauge?	(1)
	j) What are the free and fixed bearings?	(1)
	k) Give the formula for sleeper density.	(1)
	l) What is tunnel lining?	(1)
	m) What is meant by wear of rail?	(1)
	n) Draw a neat sketch of Jack arch flooring.	(1)

Attempt any four questions from Q-2 to Q-8

Q-2	Attempt all questions	(14)
A)	Explain with formulae for the bridges: Design discharge, Linear water way, Afflux, Scour depth, Economical span.	(7)
B)	Explain the type of rail section.	(7)
Q-3	Attempt all questions	(14)
A)	State the classification of bridges based on different factors.	(7)
B)	Explain the various method of welding of rails.	(7)
Q-4	Attempt all questions	(14)
A)	What are the various types of stresses induced in the railway track, Explain in brief each of them.	(7)
B)	State the objects of providing proper ventilation to the tunnel interior during construction. What are the requirements in tunnel work?	(7)



- Q-5** **Attempt all questions** (14)
- A) What is the ballast in permanent way? Mention the functions of ballast and state the requirements of a good ballast material. (7)
- B) Discuss components of bridge with the help of neat sketch. (7)
- Q-6** **Attempt all questions** (14)
- A) Describe different types and shapes of switches. (7)
- B) Describe the ways of providing effective drainage during and after the construction of tunnel. (7)
- Q-7** **Attempt all questions** (14)
- A) Discuss with sketches: (i) Erection of steel arch bridge, (ii) Maintenance of bridges. (7)
- B) Draw a neat sketch of a semaphore type signal and shows its various parts. Explain its working (7)
- Q-8** **Attempt all questions** (14)
- A) Briefly explain the methods of tunnelling in soft rock. (7)
- B) Explain the following: (7)
- 1) Engine shed
 - 2) Water column
 - 3) Turntable
 - 4) Traverser
 - 5) Buffer stop
 - 6) Triangle
 - 7) Ash-pit

