

Roll No.:

SGT UNIVERSITY

END TERM THEORY EXAMINATION JULY-2022

Faculty/College of Study:	Engineering & Technology	Year/Semester:	6 th Semester
Program:	B.Tech. (CE)	Duration:	03:00 Hrs
Course/Subject:	Design of Steel Structures-1	Maximum Marks:	60
Course/Subject Code:	13010602	Batch:	2019

Instructions:-

1. Write Your Roll No. on the Question Paper.
2. Candidate should ensure that they have been provided correct question paper. Complaint(s) in this regard, if any should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. All Questions are compulsory. Marks are indicated against each question.
4. Illustrate your answer with diagram wherever required.

SECTION-A

(Very Short Answer Type Questions)

Note: All Questions are compulsory: -

[12X1=12 Marks]

S. No.	Question	Marks Allotted
1	What is elastic limit?	1
2	What is factor of safety?	1
3	Write formula for shape factor.	1
4	What is degree of indeterminacy?	1
5	What is yielding moment?	1
6	What is plastic hinge?	1
7	What is pitch in bolted joints	1
8	Write reduction factor for long joints.	1
9	Write equation of allowable shear strength of bolt.	1
10	What are prying forces?	1
11	Write different types of welded joints	1
12	Write equation of actual bearing strength of bolt.	1

SECTION-B
(Short Answer Type Questions)

Note: All Questions are compulsory: -

[4X2=8 Marks]

S. No.	Question	Marks Allotted
13	What is relation between number of plastic hinge and degree of indeterminacy?	2
14	What is principal of virtual work done?	2
15	Explain rivet connection types	2
16	Write combined shear and tension condition of bolted joints.	2

SECTION-C
(Descriptive Answer Type Questions)

Note: All Questions are compulsory: -

[4X4=16 Marks]

S. No.	Question	Marks Allotted
17	Calculate the collapse load for fixed beam with UDL of W KN/m.	4
18	Explain different types of welded joints.	4
19	Draw stress strain diagram for steel up to fracture. Also describe various points in graph.	4
20	Calculate the shape factor for circular section.	4

SECTION-D
(Long Answer Type Questions)

Note: All Questions are compulsory: -

[4X6=24 Marks]

S. No.	Question	Marks Allotted
21	Calculate the strength of a 20mm diameter bolt of grade 4.6 for following cases. The main plates to be jointed are 12mm thick. uses Double covers butt joint, each of cover plate being 8mm thick.	6
22	An ISA 100mmX100mmX100mm carries a factored tensile force of 100 KN . It is to be jointed with a 12mm thick gusset plate. Design a high strength bolted joint when Slip permitted Steel grade is Fe410	6
23	Calculate the collapse load in simple support beam with UDL of W KN/m of intensity.	6
24	Calculate the collapse load in plastic moment analysis of fixed beam with point load of W KN acting at center of beam.	6