Q.P. Code: 20CE1013 **R20**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

M.Tech I Year II Semester Regular Examinations November-2021

ADVANCED STEEL DESIGN

(Structural Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1	Explain about types of welds and joints.		**L2**	**12M**
	OR			
2	What are the classifications of bolted connection? Explain with neat sketch.		**L2**	**12M**

UNIT-II

3	Design joint A of a tubular roof truss and the member meeting at the joint A, the line diagram of which is shown in Figure 2.		**L3**	**12M**

Member	Length	Compressive force	Tensile force
AB	2.2m	110kN	38kN
AC	2.8m	32kN	87kN

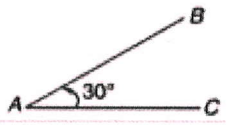


Figure 2

OR

4	A tie member in a roof truss is connected to the principal rafter at an angle of 90. Design the members and the connections for the following data. Use grade Y_{st} = 240 tubes		**L3**	**12M**

S.No.	Member	Length	Force
1	Principal rafter panel	2.6m	85kN
2	Tie member	2.2m	35kN

UNIT-III

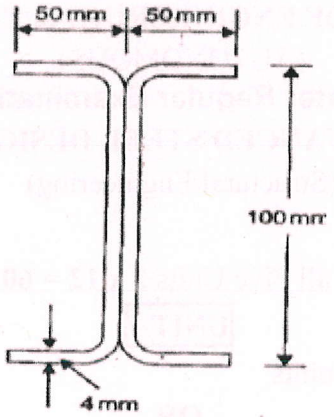
5	Explain different types of truss bridges.		**L2**	**12M**
	OR			
6	**a** Explain about design of compression chord member		**L2**	**6M**
	b Explain about design of tension chord member		**L2**	**6M**

UNIT-IV

7	A portal frame ABCD with hinged foot has stanchions 4 m high and beam of 6m span. There is horizontal point load of 40 kN at B. Whole the beam carries a point load of 120 kN at mid span. Using load factor of 1.5, establish collapse mechanism and calculate the collapse Moment.		**L2**	**12M**
	OR			
8	**a** Explain about Idealized stress-strain curve for mild steel.		**L2**	**6M**
	b Explain fully plastic moment capacity.		**L2**	**6M**

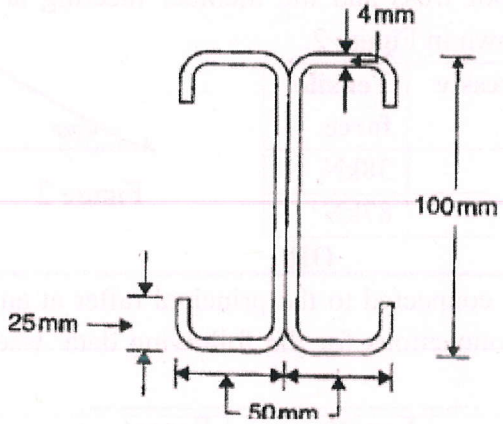
UNIT-V

9 Find the permissible load on the column shown in the Figure 2. The effective length of the column is 3m. **L3** **12M**



OR

10 Calculate the permissible load on the column section shown in Figure2. The effective length of the column is 3m. **L3** **12M**



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