

**BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)**

III B. Tech II Semester Regular Examinations (BR23) MAY-2026

DESIGN AND DRAWING OF STEEL STRUCTURES

CIVIL ENGINEERING

Time: 3 hours

Max. Marks: 70

Answer any ONE Question from **Part-A**, and any THREE Questions from **Part-B**

Please specify the IS codes to be allowed to the student in the Examination hall.

PART A (1 X 28 = 28M)

SN	QUESTION	MARKS	CO	BL
1	Design a simply supported plate girder of span 15m carrying a factored super imposed load of 48kN/m, using only end stiffeners. Draw the cross section, longitudinal section including stiffeners details to a suitable scale.	28 M	CO4	BL6
	(or)			
2	Design a built up column of length 10 m carrying an axial factored load of 1400 KN. The column may be restrained in position but not in direction at both ends. Design battens instead of lacing system.	28 M	CO5	BL6

PART B

3	a) Define rivet. Explain various types of rivet connections with neat sketch. b) Explain various types of failures of Riveted Joints.	7 M 7M	CO1	BL4
4	A beam 4m long and it is subjected to factored u.d.l of 30 kN/m. Design a simply supported beam. Take $f_y = 250$ MPa	14 M	CO2	BL5
5	An upper storey column ISHB 300 @577N/m carries a factored load of 1200kN and a factored moment of 12kN-m. It is to be spliced with lower storey column ISHB400@806N/m. Design a suitable splice.	14 M	CO3	BL6
6	Design a channel section purlin without sag bars for a trussed roof from the following data: Span of roof = 12m Spacing of purlin along slope = 2m Spacing of truss = 4m Slope of roof truss = 1 vertical, 2 horizontal, Wind load on roof = 1100 N/m ² Vertical loads from roof sheets = 150N/m ²	14 M	CO3	BL6
7	Design a welded plate girder of span 24 m to carry a super imposed load of 30 kN/m. Use Fe415 (E250) grade steel.	14 M	CO5	BL6
