Course Code: 23CE6T01

BONAM VENKATA CHALAMAYYA INSTITUTE OF TECHNOLOGY & SCIENCE
(AUTONOMOUS)

III B. Tech II Semester Regular Examinations (BR23) APRIL/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 gusseted base for a column ISHB 350 @710N/m with two plates 450mm X 20mm carrying a factored load of 4000kN. The column is supported on concrete pedestal to be built with M20 grade of concrete. Fe 410m grade of steel. Draw to scale plan of gusset base with details and side views of the gusset base. And also design connections between the base plate and foundation.	28 M	CO4	BL6
	(or)			
2	Design an 18m long simply supported welded plate girder carrying a uniformly distributed load of 50kN/m excluding self weight and two concentrated loads of 350kN each at quarter points of the span. Assume that girder is laterally supported throughout. Draw to scale i) the cross-section, ii) the longitudinal views.	28 M	CO5	BL6
	PART B			
3	a) Explain about types and properties of welds with neat sketches. b) List out and explain various advantages and disadvantages of welded connections over riveted connections.	7 M 7 M	CO1	BL4
4	A simply supported beam of span 5m is subjected to a superimposed load of 30 kN/m over entire span and a concentrated load of 200 kN at mid span. Design the beam and check for deflection and shear. The beam is laterally supported throughout.	14 M	CO2	BL5
5	Design a tension member 3.4m between c/c of intersections and carrying a pull of 145kN, the member is subjected to reversal of stresses.	14 M	CO3	BL6
6	Design a column of effective length 5.9 m. It is subjected to an axial load of 1400 kN. Provide two channels back to back connected with battens by welded connections. Assume fy = 250 MPa.	14 M	CO3	BL6
7	Design a slab base for a column ISHB 300@577 N/m carrying an axial load of 1000kN. Adopt M20 concrete and welded connection between column and base plate.	14 M	CO4	BL6