

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Sixth Semester

Civil Engineering

CE3601-Design of Steel Structural Elements

Use of IS 800-2007, IS 875-Part 3 and Steel Table is Permitted

Regulations - 2021

Duration : 3 Hrs

Maximum: 100 Marks

PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)

Q.No	Questions	BLT	CO	Marks
1.	Classify the types of failures occur in bolt joint.	UN	1	2
2.	Compare the advantages of welded connection over bolted connection.	UN	1	2
3.	Write down the limiting slenderness ratio for a tension member.	RE	2	2
4.	What do you mean by web buckling?	RE	2	2
5.	Define shape factor and what is meant by slender section?	RE	3	2
6.	Define laterally restrained beam. Why do compression flanges require lateral support?	UN	3	2
7.	Summarize the various components of a roof truss.	UN	4	2
8.	Define Drift Analysis.	RE	4	2
9.	List the assumptions in plastic theory.	RE	5	2
10.	Determine the collapse load for a propped cantilever with UDL.	AP	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)

Q.No	Questions	BLT	CO	Marks
11.	a Two plates 10 mm and 8 mm thick are connected by double cover butt joint made of 8mm cover plate. Calculate the strength of the joint. If 4 numbers of M20 bolts of grade 4.6 and Fe 415 are used on either side of the joint in two rows with pitch of 60mm and edge distance of 40mm in both directions.	AN	1	13
	Or			
	b A tie member of a roof truss consists of 2 ISA 90 mm X 60 mm X 10 mm. The angles are connected on either side of 12 mm gusset plate and the member is subjected to a pull of 400kN. Design the welded connection.	CR	1	13
12.	a Analyse the tensile strength of a roof truss member 2 ISA 90x60x6 mm connected to the gusset plate of 8 mm thickness by 4mm weld. The effective length of weld is 200mm.	AN	2	13
	Or			
	b Determine the design axial load on the column section ISMB 400, given that the height of the column is 3.5 m and that it is pin-ended. Also assume the following: $f_y = 250 \text{ N/mm}^2$, $f_u = 410 \text{ N/mm}^2$; $E = 2 \times 10^5 \text{ N/mm}^2$	AN	2	13

