	Sanjay Ghodawat University, Kolhapur Established as State Private University under Govt. of Maharashtra. Act No XL, 2017	**2020-21** EXM/P/09/00

Year and Program: 2020-21 B.Tech	**School of Technology**	**Department: Civil Engineering**
Course Code: CET308R1	**Course Title: Design of Steel Structures**	**Semester: VI**
Day and Date: Monday,07.06.2021	**End Semester Examination**	**Time:2 Hrs. Max Marks:50**

Instructions: 1) All Questions are compulsory.
2) Use of Non programmable calculator is allowed.
3) Use of IS800:2007 and Steel table is allowed.

		Marks	Bloom's Level	CO
Q.1	**Answer/Solve the following (any Two)**			
a)	Discuss the advantages and disadvantages of limit state method over working stress method.	8	L2	CO1
b)	Explain the modes of failure of bolted connections (for both bolts and plate) with neat sketches.	8	L2	CO1
c)	A single equal angle ISA 80x80x8 mm is connected to gusset plate 8 mm thick with 4-20 mm diameter bolts. Determine the tensile strength of this angle. Assume yield and tensile stresses for the material to be 250 MPa and 410 MPa respectively. Spacing of bolt holes is 60 mm c\c.	8	L4	CO2
Q.2	**Answer/Solve the following (any two)**			
a)	Calculate Compressive resistance of 200mm X 200mm X 12mm angle is having length 3m between C/C intersection and connected by two bolts at the end through one leg angle.	8	L3	CO2
b)	Calculate design compressive strength of ISHB 350 @ 710.2N/M provided with two cover plate one at each flange 350 X 10 with actual height 5m and both ends are hinged (both ends restrained against translation and free for rotation)	8	L3	CO3
c)	Define the following terms, i) Slenderness Ratio ii) Radius of Gyration iii) Effective Length of Column iv) Sketch of Single lacing and Battening system	8	L2	CO3
Q.3	**Answer/Solve the following (any two)**			

a)	A simply supported beam of effective span 4m carries a uniformly distributed load of 12 kN\m inclusive of self-weight throughout the span. The compression flange of the beam is laterally supported throughout span. Design the section to carry the load and check it for shear and deflection. Use grade of steel as Fe 410.	9	L4	CO4
b)	State the various loads acting on the gantry girder with the help of neat sketch.	9	L3	CO4
c)	Define shape factor and calculate the same for i) Rectangular section ii) Circular section iii) Triangular section	9	L2	CO4

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