Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF ENGINEERING & TECHNOLOGY

Diploma Engineering, Mid semester Examination

Semester: 6TH **Date: (18/01/2023)**

Subject Code: 03605351 **Time: (1hr: 30min)**

Subject Name: Design of Steel Structure **Total Marks: 40**

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. English version is considered to be Authentic.

Q.1	Answer any six out of Ten. (2 Marks Each)	(12)	CO/PO	BLOOM'S TAXONOMY
	1. Define the partial safety for loads.		CO2	Knowledge
	2. Write ultimate and yield stress for class 8.8 bolt.		CO2	Apply
	3. List factors affecting Wind load.		CO2	Apply
	4. What is Limit State Method?		CO2	Knowledge
	5. What is value of Single Shear Bolt Value for 20 mm Dia.		PO2	Analyze
	6. Write value of stress in weld Fwd for shop and field weld for Fe410.		PO2	Apply
	7. What is the value of Risk Co-efficient k1 for a roof truss located in Baroda for 25-year life.		PO2	Analyze
	8. Calculate live load on truss and purling for a roof angle 26º.		PO2	Analyze
	9. List names of various types of rolled steel sections.		CO2	Apply
	10. Define Lacing & Batten.		CO2	Knowledge
Q.2	A) Two plates 150mmx12mm and 150mmx16mm are connected by lap joint to resist Design tensile load of 105 kN. Design the lap joint using M16 bolts of 4.6 grade Take fu=410 MPa for plates	(03)	PO2	Analyze
	OR			
	A) Two plates 8mm and 12mm are connected by lap joint to resist Design tensile load of 80 kN. Design the lap joint using M20 bolts of 4.6 grade Take fu=410 MPa for plates	(03)	PO2	Analyze
	B) Advantages of bolted connection over welded connection.	(03)	CO2	Knowledge
	OR			
	B) State advantages and disadvantages of steel structures.	(03)	CO2	Knowledge
	C) Define Edge Distance & Pitch Distance as per IS code.	(04)	CO2	Knowledge
	OR			
	C) Find minimum pitch and edge distance for M20 bolt. &What is the value of End return for 6mm size of welding?	(04)	PO2	Analyze
	D) Calculate D.L per panel point for a Howe truss using following Data. (1) span -12m (2) spacing -3.5m c/c (3) Rise -2.4m (4) No. of panels-8 (5) Roofing – A.C sheet (6) Location –Vadodara (7) Permeability –Medium (8) Height -14m (9) Terrain category -3 (10) class –B (11) life span -75 years (12) Terrain – Plain horizontal Ground.	(04)	PO1	Analyze
Q.3	A) Types of Bolted Connections.	(03)	CO2	Apply
	OR			
	A) Define Size of weld & Throat Thickness.	(03)	PO2	Knowledge
	B) Design suitable fillet weld to connect a tie plate 60 x 8 mm to a 12mm thick G.P. The plate is subjected to a load equal to full strength of member, Assume shop welding & Fe-410.	(03)	PO2	Analyze
	OR			
	B) Calculate L.L per panel point for a Howe truss using following Data. (1) span -12m (2) spacing -3.5m c/c (3) Rise -2.4m (4) No. of panels-8 (5) Roofing – A.C sheet (6) Location –Vadodara (7) Permeability –Medium (8) Height -14m (9) Terrain category -3 (10) class –B (11) life span -75 years (12) Terrain – Plain horizontal Ground	(03)	PO1	Analyze
	C) Draw sketches of Types of roof truss.	(04)	PO2	Understanding
	OR			

	C) Two 8 mm. thick plates are connected by a single bolted lap joint with 20 mm. dia. bolts. Pitch of the bolts is 60 mm. Calculate the efficiency of joint. Take fu of the plates 410 Mpa and 4.6 grade bolts (fub = 400 Mpa).	**(04)**	**PO2**	**Analyze**
	D) Calculate W.L per panel point for a Howe truss using following Data. (1) span -12m (2) spacing -3.5m c/c (3) Rise -2.4m (4) No. of panels-8 (5) Roofing – A.C sheet (6) Location –Vadodara (7) Permeability –Medium (8) Height -14m (9) Terrain category -3 (10) class –B (11) life span -75 years (12) Terrain – Plain horizontal Ground	**(04)**	**PO1**	**Analyze**