

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
Diploma Engineering, Mid semester Examination

Semester: 4th
Subject Code: 03605251
Subject Name: Theory of Structure

Date: 18/01/2023
Time: 1hr: 30min
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 NAME	Blooms Taxonomy Words
	1. Define Statically Determinate & Indeterminate Beam		CO1	Knowledge
	2. Enlist different methods for the analysis of Continuous Beam		CO1	Apply
	3. Explain Limit of Eccentricity		CO1	Knowledge
	4. Explain core of section.		CO1	Knowledge
	5. Define terms : 1) Axial load 2) Eccentric load		CO1	Knowledge
	6. Write the formula for maximum bending moment for simply supported beam carry UDL.		CO2	Understanding
	7. Explain eccentricity and eccentric load.		CO1	Knowledge
	8. Write the examples of statically determinate Beam.		CO1	Apply
	9. Write different types of support.		CO1	Apply
	10. Enlist different types of load.		CO1	Apply
Q.2	A) Explain Clapryeon's theorem of three moments.	(03)	CO2	Understanding
	OR			
	A) State advantage of fixed beam.	(03)	CO2	Knowledge
	B) Draw Bending Moment Diagram using Area Moment Method for a Fixed Beam having span of 5 meter which is subjected to point load of 180 kN at the center.	(03)	PO3	Analyze
	OR			
	B) A fixed beam of 7 m span carries an u.d.l. of 40 kN/m on entire span. Draw bending moment and shear force diagram	(03)	PO2	Analyze
	C) A two span continuous beam ABC has AB=4 meter and BC= 6 meter. Support A and C are simply supported Beam AB is subjected to point load of 50 KN at the center and Beam BC is subjected to U.D.L of 40 kN/meter over full span. Consider EI= Constant. Draw Bending Moment Diagram using Clapryeon's theorem of three moments.	(04)	PO1	Analyze
	OR			
	C) A two span continuous beam ABC has AB=5 meter and BC=7 meter. Support A and C are simply supported. Beam AB is subjected to point load of 60 KN at the center and Beam BC is subjected to U.D.L of 20 kN/meter over full span. Consider EI= Constant. Draw Bending Moment Diagram using Clapryeon's theorem of three moments.	(04)	PO1	Analyze
	D) Distinguish between fixed beam and simply supported beam.	(04)	CO2	Understanding
Q.3	A) A cast iron column having 150mm diameter carries an eccentric load of 50 kn. If maximum tensile stress is not to exceed 7.5N/mm ² . Find permissible eccentricity of load on column.	(03)	PO1	Analyze
	OR			
	A) Draw core of the square, rectangular and circular cross sections	(03)	CO2	Knowledge
	B) Find and draw Core for a rectangular Column having dimension of 300 x 700 mm	(03)	CO2	Analyze
	OR			
	B) A Rectangular column of size 300 mm x 400 mm is subjected to a load of 600kN on a axis bisecting 400 mm side at an eccentricity of 50 mm from centre. Find maximum and minimum stresses in the section.	(03)	PO1	Analyze
	C) A trapezoidal masonry Dam is 6.5meter high , 1.2 meter wide at top and 4.8 meter wide at bottom. It retains water up to 6 meter on its vertical face.	(04)	PO2	Analyze

	Find maximum and minimum stresses at the base. Consider Density of masonry as 20 kN/m ³ and Density of water as 10 kN/m ³ .			
	OR			
	C) Explain No tension Condition.	(04)	PO2	Knowledge
	D) Explain stability conditions of retaining wall/ dam	(04)	CO2	Understanding