

[M19 ST 1101]

I M. Tech I Semester (R19) Regular Examinations
Theory of Elasticity
(Structural Engineering)
MODEL QUESTION PAPER

TIME: 3 Hrs.

Max. Marks: 75 M

Answer **ONE Question** from **EACH UNIT**

All questions carry equal marks

			CO	KL	M
		UNIT - I			
1.	a).	Write short notes on Generalized Hooke's law.	1	2	7
	b).	Derive expressions for stress at a point.	1	2	8
		OR			
2.	a).	Derive differential equations of equilibrium for rectangular plate.	1	4	7
	b).	Derive expressions for compatibility for a two dimensional problems.	1	4	8
		UNIT - II			
3.	a).	Explain Saint Venant's principle ?	2	4	7
	b).	Derive an expression for bending of a cantilever loaded at the end	2	4	8
		OR			
4.		Explain the application of Fourier series for two dimensional problems?	2	4	15
		UNIT - III			
5.		Derive the general equation in polar coordinates	3	4	15
		OR			
6.		Discuss the effect of a circular hole on the stress distribution in a rectangular plate subjected to tensile stress in x-direction and hence evaluate the stress concentration factor	3	4	15
		UNIT - IV			
7.		Derive the system of equations generally sufficient for determining the stress components.	4	4	15
		OR			
8.		Write a short note on			
	a)	Principle of superposition	4	4	8
	b)	Uniqueness of solution	4	4	7
		OR			
9.	a).	Explain the analogy of torsion	5	4	7
	b).	Explain with an example solution of torsional problems by energy method	5	4	8
		OR			
10.		Derive an expression for stretching a prismatic bar under its own weight	5	4	15

CO: Course Outcome

KL: Knowledge Level

M: Marks