

Course Name: **Mechanics of Material**, Course Code: **201CHL203**

Day and Date: Friday, 20.01.2023

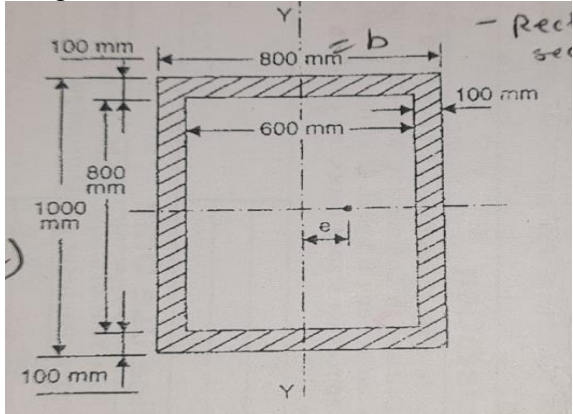
Time: 2.00 pm to 4.00 pm

Seat No:

Max. Marks- 50

Instructions:

- Question No. 1 & 2 is compulsory.
- Figure to the right indicate full marks.

BT	CO's	Q.No.		Marks
		Q.1	All Questions are compulsory	20
1	CO1	a	Explain types of Stresses and Strains.	7M
3	CO2	b	A metal bar of 10 mm diameter, when subjected to a pull of 23.55 KN give an elongation of 0.30 mm over a length of 200 mm. In torsion test on same material a maximum shear stress of 4017 N/mm ² was measured on a bar of 50 mm diameter, the angle of twist measured over a length of 300 mm being 0.35 deg. Determine the Poisson's Ratio.	7 M
3	CO3	c	A pipe of 400 mm internal diameter and 100 mm thickness contains a fluid at a pressure of 8 N/mm ² . Find maximum and minimum hoop stress across the section.	6 M
		Q.2	All Questions are compulsory	10
1	CO4	a	A hollow rectangular column of external depth of 1 m and external width of 0.8 m is 10 cm thick. Calculate the maximum and minimum stress in the section of the column if a vertical load of 200 KN is acting with an eccentricity of 15 cm as shown in fig. 	6

1	CO4	a	Middle third rule for rectangular section.		4
		Q.3	All Questions are compulsory		10
1	CO5	a	Explain Maximum Shear Stress Theory		3
1	CO5	b	Explain Maximum Principal Strain Theory		7
		Q.4	Attempt any two out of three questions		10
1	CO6	b	Explain Mechanical Properties of material in detail.		5
1	CO6	b	Explain Nondestructive testing in detail.		5
1	CO6	b	Explain fabricating characteristics of material in detail.		5
