D.Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY

KASABA BAWADA KOLHAPUR-416006

(An Autonomous Institute)

S. Y. B.Tech. (Chemical Engg.) (Semester-III)

END SEMESTER EXAMINATION, OCT/NOV- 2021-22

COURSE NAME: Mechanics of Material, COURSE CODE: 201CHL203

Day and Date: Saturday, 22/01/2022

Seat No :

Time: 11.00 am to 12.30 pm   **Max. Marks- 50**

Instructions:

i. *All Questions are compulsory.*
ii. *Figure to the right indicate full marks.*
iii. *Assume suitable data if necessary.*

BT	CO's	Q. No.	Questions Statements	
		Q.1	**Attempts following**	**20 Marks**
1	CO1	a	Explain Temperature stresses.	*7 Marks*
3	CO2	b	The stresses on mutually perpendicular planes are 60N/mm^2 tensile and 40 N/mm^2 compressive. The planes also carry shear stress of 30 N/mm^2 Determine :1. Oblique angle 2. Principle Stresses 3. Maximum Shear stress.4. Inclination of plane carrying maximum shear stress.	*7 Marks*
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 Marks*
		Q.2	**Attempts following**	**15 Marks**
1	CO4	a	The line of thrust, in a compression testing specimen of 15 mm diameter, is parallel to the axis of the specimen but is displaced from it. Calculate the distance of the line of thrust from the axis when the maximum stress is 20% greater than the mean stress on a normal section.	*8 Marks*

2	CO5	b	Explain Maximum Principal Strain Theory. **OR** Explain Maximum Shear Stress Theory.	*7 Marks*
		Q.3	**Attempts following** **Marks**	**15**
1	CO4	a	A short column of rectangular cross section 80mm by 60mm carries a load of 40 KN at a point 20 mm from the longer side and 35 mm from shorter side. Determine the maximum compressive and tensile stresses in the section.	*7 Marks*
2	CO6	b	Explain Mechanical Properties of material in detail. **OR** Explain Nondestructive testing in detail.	*8 Marks*

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