D.Y. PATIL COLLEGE OF ENGINEERING & TECHNOLOGY
KASABA BAWADA KOLHAPUR-416006
(An Autonomous Institute)
S. Y. B. Tech/B. Arch
END SEMESTER EXAMINATION, Dec. – 2022

Q. Paper Code:
Set-: I/II

Course Name: Mechanics of Structures Course Code: 201CEL202

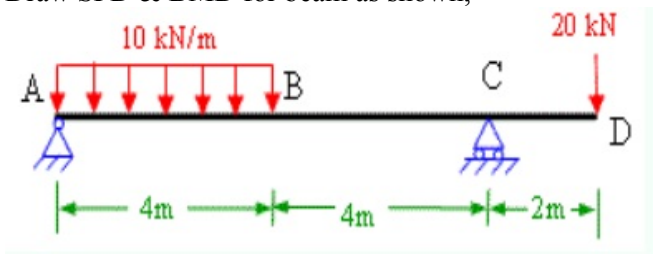
Day and Date: …….day, …/…/2022
Time: ……

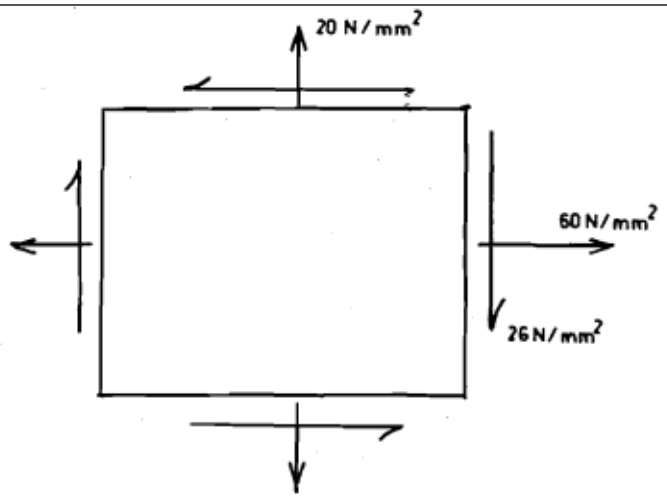
Seat No:

Max. Marks- 50

Instructions:

i. Question No. 1&2 is compulsory.
ii. Figure to the right indicate full marks.
iii. Non Progammable calculator is allowed to use.
iv. Assume suitable data if necessary.

BT	CO's	Q. No.	Marks		Weightage
		Q.1		**20**	**40%**
	CO2	**a**	Explain term point of contraflexure with neat sketch?	**6M**	
1,2	**CO1**	**b**	Determine the Poisson's ratio and bulk modulus of a material, for which Young's modulus is 1.2 x 10^5 N/mm2 and modulus of rigidity is 4.8 x 10^4 N/mm 2.	**7 M**	
1,2	**CO1**	c	Draw SFD & BMD for beam as shown, 	**7 M**	
		Q.2		**10**	**60%**
1,2	**CO2**	**a**	Explain concept of pure bending	**4M**	
1,2	**CO1**	**b**	A rectangular beam 200mm deep and 300mm wide is simply supported over the span of 8m. What uniformly distributed load per metre the beam may carry, if the bending stress is not exceeding 120N/mm2.	**6M**	
		Q.3		**10**	
1,2	**CO1**	**a**	Draw Shear stress daigram for L , I & T beam	**3M**	
1,2	**CO1**	**b**	A T-section beam has a top flange of (120mm x 20mm) and the web of (20mm x 100mm). The overall depth is 120mm. It is subjected to a shear force of 60kN. Draw the shear stress distribution diagram.	**7M**	
		Q.4		**10**	
1,2	**CO1**	**a**	Explain following terms Normal sresses, Shear stress and Angle of obliquity.	**5M**	
1,2	**CO1**	**b**	At a point in strained material the principal stesses are 100 N/mm^2 Tensile & 40 N/mm2 compressive determine the normal stress, tangential stress and resultant stress in manitude on plane 30 ^{0} to principal plane	**5M**	
1,2	**CO1**	**C**	Evaluate the principal stresses and principal planes for the state of stress shown	**5M**	

			 20 N / mm² 60 N / mm² 26 N / mm²		

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