Roll No. _____

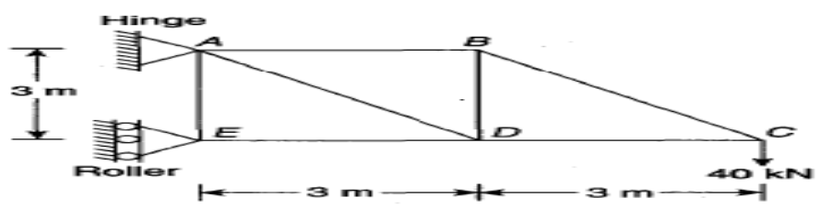
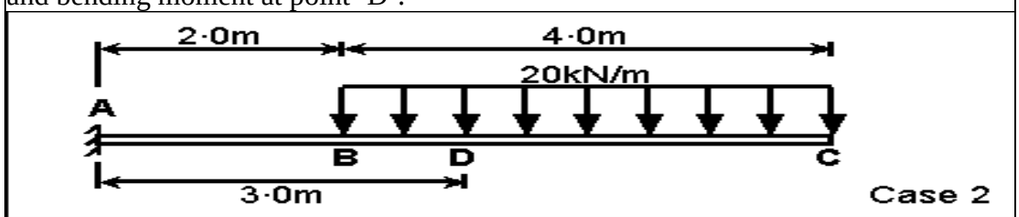
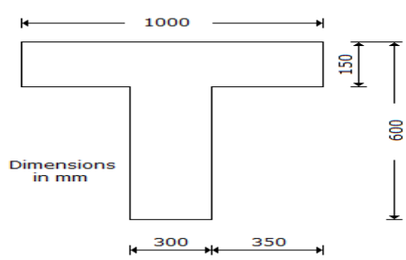
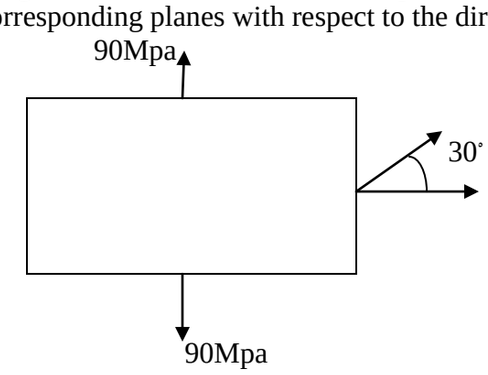
END SEMESTER EXAMINATION

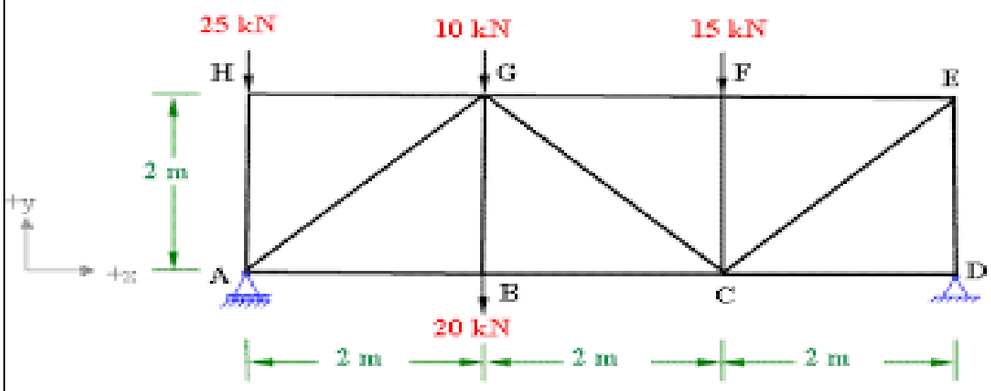
SEMESTER- V

COURSE CODE : CE-408 | **DURATION :3 (THREE)HRS**
COURSE TITLE : THEORY OF STRUCTURES | **MAXIMUM MARKS : 75**
SESSION : JULY-DEC'2021 | **PASS MARKS : 35 %**

NOTE: *1. Attempt any 6(six) questions.*
3. Mark for each question is shown against it.
4. Assume suitable logical data wherever necessary.

PART – I

1.	**(a)**	Calculate the forces acting on the Truss given below and also draw the free body diagram. 	**(15)**
2.	**(a)**	Draw the SFD and BMD of the figure given below. Also calculate the shear force and bending moment at point 'D'. 	**(15)**
3.	**(a)**	A beam of T-section as shown below is subjected to a shear force of 85KN. Find the maximum intensity of shear stress and also sketch the distribution of stress across the section. 	**(15)**
4.	**(a)**	A Cantilever steel beam has a free length of 3m. The moment of inertia of the section is 30000000 mm4 is subjected to a concentrated load of 50KN at the free end. Find the deflection at the free end using: i. Moment area method and ii. Macaulay's method.	**(15)**
5.	**(a)**	At a point in a strained material, the resultant intensity of stresses across a certain plane as shown in figure given below. Evaluate the Principal stresses, maximum shear stress and their corresponding planes with respect to the direction of the normal stress of 90Mpa. 	**(8)**
	(b)	Define Principal stress. What is the importance of Mohr's circle method?	(2+5)

6.	**(a)**	At a point in a beam there are tensile stresses 50 N/mm2 and 30N/mm2 respectively at right angle to one another, together with a shearing stress. If the major principal stress is 60KN tensile, evaluate the shear stress on the two planes. Calculate the minor principal stress and also the maximum shear stress by using both analytical and graphical method.	**(15)**
7.	**(a)**	What is Deflection of Beam? With a neat sketch show nature of elastic curve of following beam: 1. Cantilever beam 2. SSB 3. Overhanging beam	**(2+6)**
	(b)	What are the assumptions made in Method of Section?	**(2)**
	(c)	Differentiate between determinate and indeterminate frames.	**(5)**
8.	**(a)**	Determine the forces acting on the Truss given below:  	**(15)**
9.		Describe briefly with a neat diagram: a) Shear force and SFD b) Types of load on beam c) Flithed beam d) Truss e) Conjugate beam method	**(5x3)**

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