U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

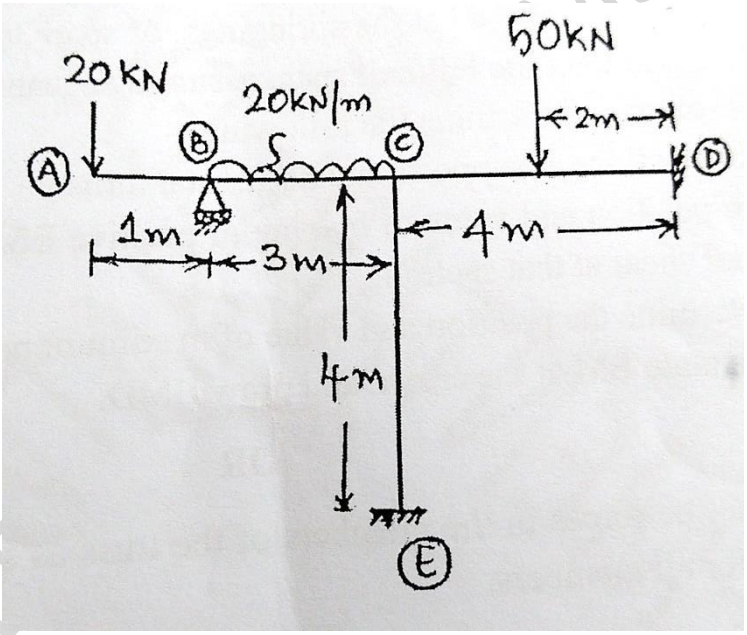
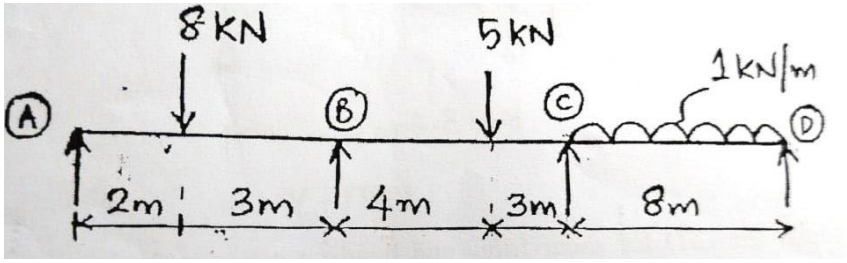
Autonomous Institute Affiliated to VTU

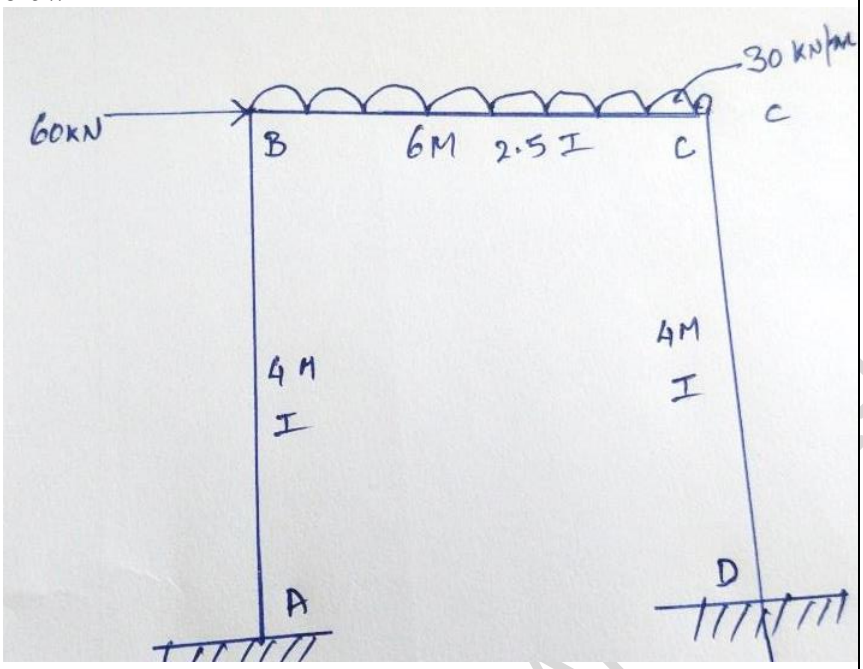
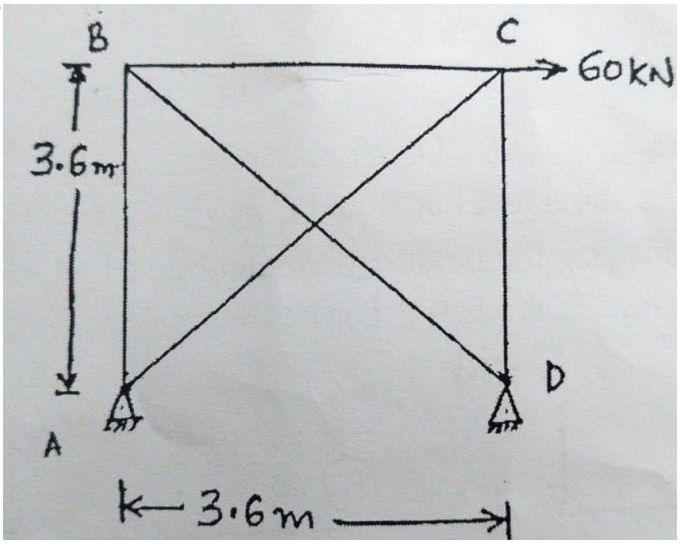
August 2024 Supplementary Examinations

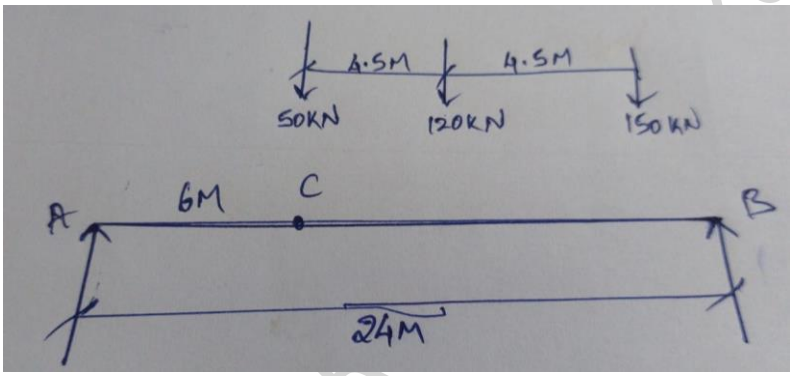
Programme: B.E. **Semester: V**
Branch: Civil Engineering **Duration: 3 hrs.**
Course Code: 20CV5PCISA **Max Marks: 100**
Course: Indeterminate Structural Analysis

Instructions: 1. Answer any **FIVE full** questions, choosing one full question from each unit.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

			UNIT - I	
1		Analyze the rigid frame shown in fig 1 by slope deflection method.Sketch the shear force and bending moment diagrams. Assume EI as constant.  Fig 1	**20**
			UNIT - II	
2		A continuous beam ABCD 20 m long is simply supported at its ends and is propped at same level at B and C as shown in fig 2. If the support 'B' sink by 10mm, analyze the beam by Moment distribution method. Sketch bending moment diagram. Take $E=2.1x10^5$ N/mm^2 and $I=85x10^5$ mm^4. EI is constant.  fig 2	**20**

		UNIT - III		
	3		Analyze the rigid frame shown in fig 3 by Kani's method and draw BMD  Fig 3	**20**
		UNIT - IV		
	4		A two hinged parabolic arch of span 25m and a central rise of 4.5m is subjected to an udl of intensity 30kN/m over the entire length of arch along with this, it is also subjected to two concentrated loads of 50kN each acting at a distance of 5m and 12.5 m from the left end respectively. Determine the horizontal thrust, normal thurst and radial shear at a distance of 8m from the right end. Also find the maximum positive and negative moments in the arch rib. Sketch the BMD	**20**
		OR		
	5		Determine the forces in the members of the truss shown in fig.4. Take AE as constant for all the members  Fig 4	**20**

	UNIT – V			
	6	a	Obtain the condition for max BM at a section of a simply supported beam traversed by an udl shorter than span	**10**
		b	A simply supported girder of span 25m is traversed by a total distributed load of 180 kN spread uniformly over a length of 6m. Evaluate: a) Absolute Max. BM b) Absolute Max. SF c) Max. BM at a distance 4m from left support	**10**
	OR			
	7		A girder of span 24 m is simply supported at ends is traversed by a train of loads as shown in fig 5. The loads can move in either direction with 150KN load leading. Find the maximum bending moment at a section 6m from the left support. Also find the absolute maximum shear force.  Fig 5	**20**

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