U.S.N.										

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

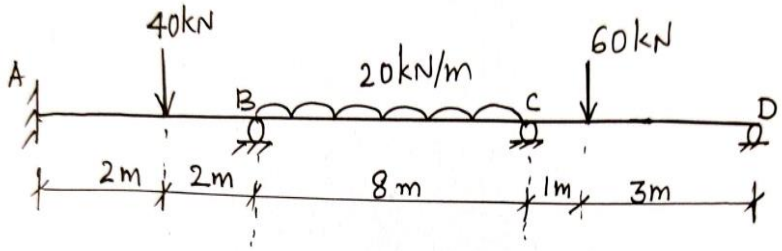
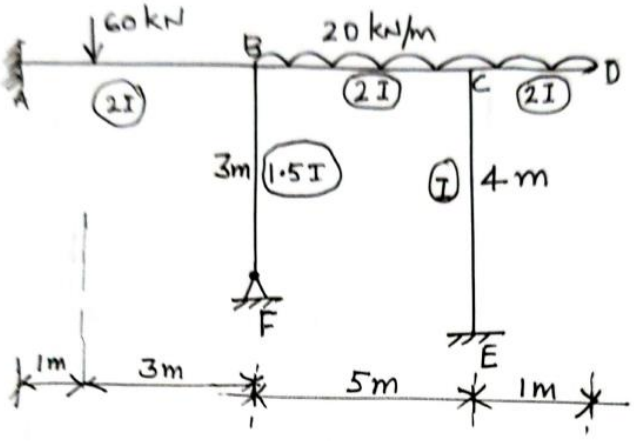
Autonomous Institute Affiliated to VTU

September / October 2024 Supplementary Examinations

Programme: B.E. **Semester: V**
Branch: Civil Engineering **Duration: 3 hrs.**
Course Code: 22CV5PCSSA **Max Marks: 100**
Course: Structural System Analysis

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

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 - 1	CO	PO	Marks
1		Analyze the continuous beam shown in Fig Q(1) using Slope – Deflection method. Draw the BMD and Elastic curve. The support B sinks by 5 mm. Assume EI=8000 kN-m^2 and constant for all members.  FigQ1	CO1	PO1 PO2	**20**
		UNIT-2			
2.		In the rigid frame shown in Fig Q 2 the support , A sinks by 3 mm. Analyze the frame using Moment Distribution method. Sketch the BMD and the elastic curve. Assume EI=8000 kN-m^2  Fig Q2	CO1	PO1 PO2	**20**

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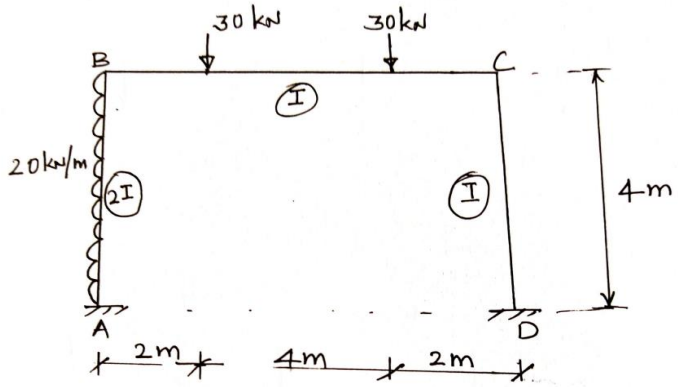
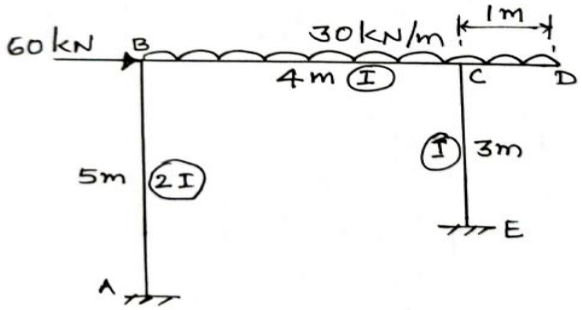
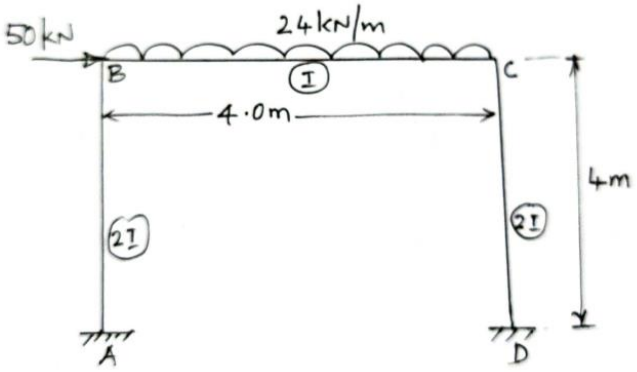
			UNIT-3			
	3.		Analyze the orthogonal rigid frame shown in Fig Q3 by slope-deflection method. Sketch the BMD and the elastic curve.  Fig Q3	CO1	PO1, PO2	**20**
			OR			
	4		Analyze the rigid frame shown in Fig Q4 by Moment Distribution method. Sketch the BMD and the elastic curve.  Fig Q4	CO1	PO1, PO2	**20**
			UNIT - 4			
	5		Analyze the rigid frame shown in FigQ5 using direct stiffness method and draw BMD & Elastic curve.  Fig Q5	CO2	PO1, PO2	**20**

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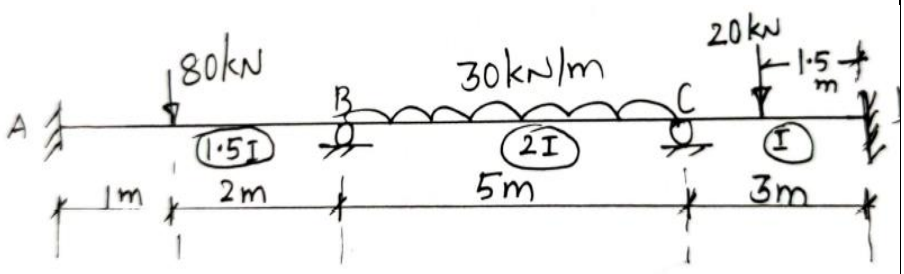
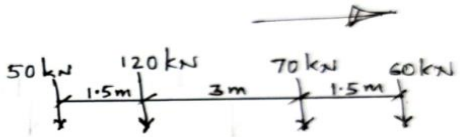
			OR			
	6		Analyze the continuous beam shown in Fig Q6 by using direct stiffness method. Support B sinks by 4 mm. Assume EI=8000 kN-m^2  Fig Q6	CO2	PO1 PO2	**20**
			UNIT - 5			
	7		A series of wheel loads 60 KN, 70 KN, 120 KN and 50 KN spaced at 1.5m, 3m and 1.5 m crosses over a simply supported girder of span 20 m from left to right with 60 KN leading as shown in FigQ7(b). Determine (i) Maximum BM and SF at 6 m from left support (ii) Maximum BM under 60 KN load (iii) Absolute maximum BM and SF (iv) Equivalent udl  FigQ7(b).	CO3	PO1 PO2	**20**

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