



	InSem Examination-II Summer2024		
	Exam Seat No.:		
	Academic Year:2023-2024	Semester:IV	
	Name of Programme:S.Y.B.Tech(Civil Engineering)	Pattern:2022	
	Name of Course:Structural Analysis	Course Code:CIV222011	
	Max. Marks:30	Duration:1 hour	

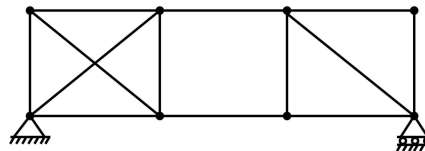
	<p><b>Instructions:</b> Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.</p> <ol style="list-style-type: none"> <li>1. This question paper contains 2 pages.</li> <li>2. Answer to each new question is to be started on a new page.</li> <li>3. Assume suitable data wherever required, but justify it.</li> <li>4. Draw the neat labelled diagrams, wherever necessary.</li> <li>5. The last columns indicates the Course Outcome</li> </ol>	
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**Question No. 1 Attempt following Question**

- a) Define degree of static and kinematic indeterminacy with example. (3) CO1

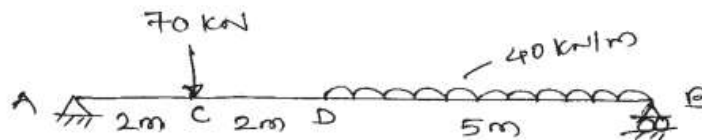
**OR**

- b) Identify degree of static indeterminacy of the given structure shown in figure 1 b (3) CO1



**Figure 1 b**

- c) Determine deflection at 'C' for the given beam shown in figure 1 c using Macaulay's method. (6) CO1



**Figure 1 c**

**OR**

- d) Determine maximum deflection, for a simply supported beam of span 'L' m carrying udl on entire span of intensity  $w$  kN/m, using Macaulay's method (6) CO1

- e) Determine deflection at the free end of cantilever beam of span 'l' m subjected to udl of 'w' per unit length over the entire span of the beam. Use castigliano's first theorem. (6) CO1

OR

- f) Analyze propped cantilever beam as shown in figure 1 f (6) CO1

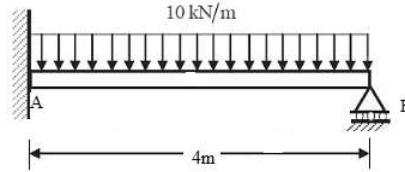


Figure 1 f

**Question No. 2 Attempt following Question**

- a) Explain the concept of lack of fit of members in truss (3) CO2

OR

- b) Write down the assumptions of portal frame method. (3) CO2

- c) Determine forces in members of the truss as shown in figure. 2 c . Cross sectional area and material of all members is same (12) CO2

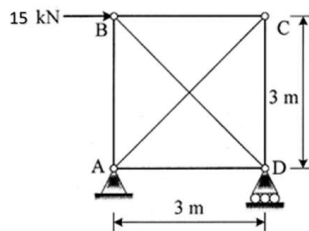


Figure. 2 c

OR

- d) Analyze a given frame shown in figure 2 d using portal method. (12) CO2

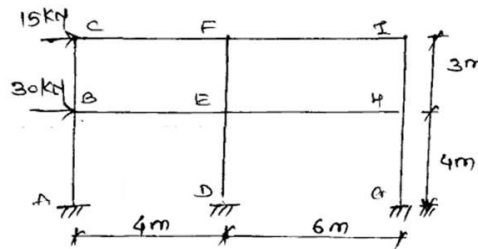


Figure 2 d

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