CBCS SCHEME - Make-Up Exam

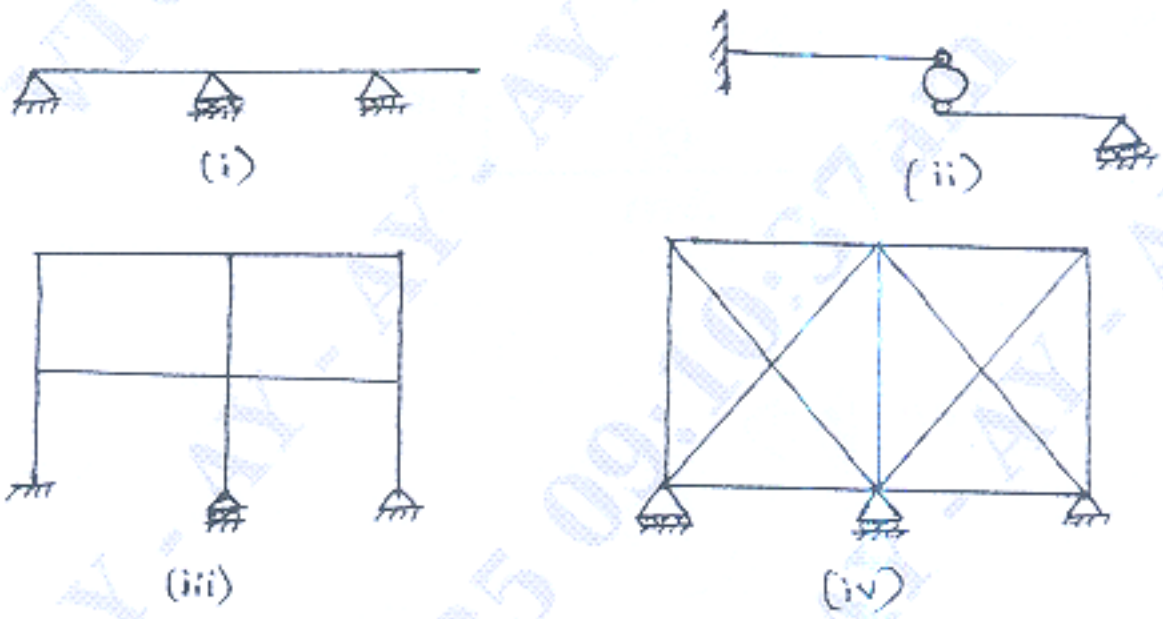
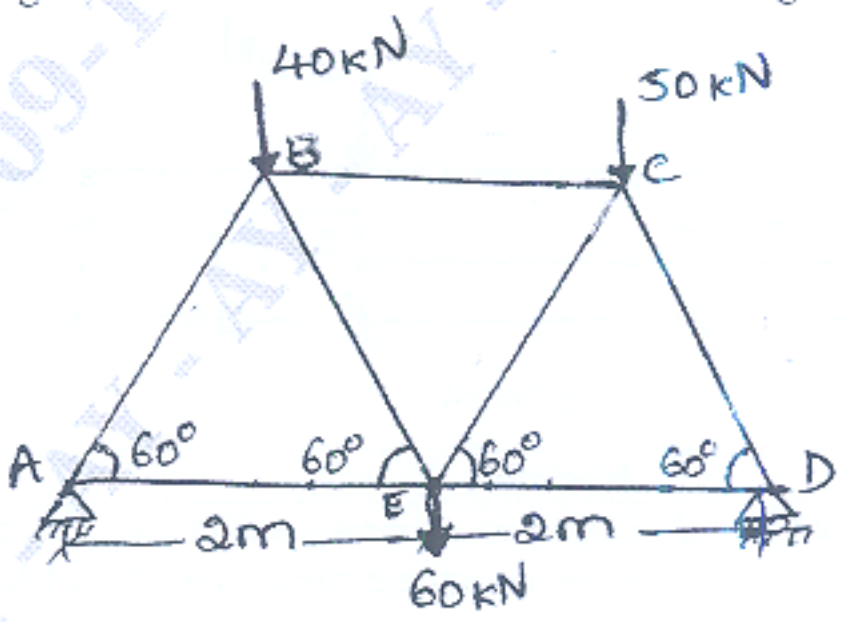
USN | | | | | | | | | | |

BCV401

Fourth Semester B.E./B.Tech. Degree Examination, June/July 2025
Analysis of Structures

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.
3. Missing data, if any, may be suitably assumed.
4. Write legibly.

		Module – 1	M	L	C
Q.1	a.	Briefly explain different forms of structures.	4	L2	CO1
	b.	Distinguish between determinate and indeterminate structures.	6	L2	CO1
	c.	Determine degree of static and kinematic indeterminacy for the structures shown in Fig.Q1(c).  Fig.Q1(c)	10	L3	CO1
		OR			
Q.2		Determine the forces in all the members of the truss shown in Fig.Q2 and indicate the magnitude and nature of the forces on the diagram of truss.  Fig.Q2	20	L3	CO1

Module – 2

Q.3	a.	Determine maximum slope and deflection for the simply supported beam shown in Fig.Q3(a) by moment area method.	10	L3	CO2

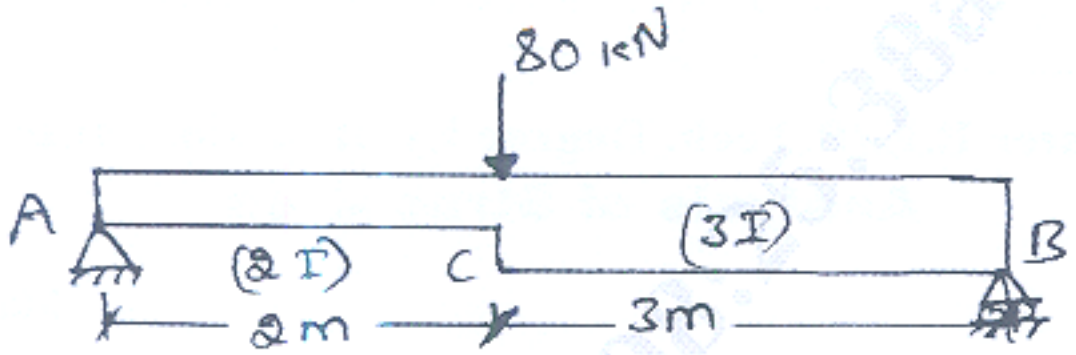


Fig.Q3(a)

	b.	Calculate slope and deflection for the cantilever beam shown in the Fig.Q3(b) by moment area method.	10	L3	CO2

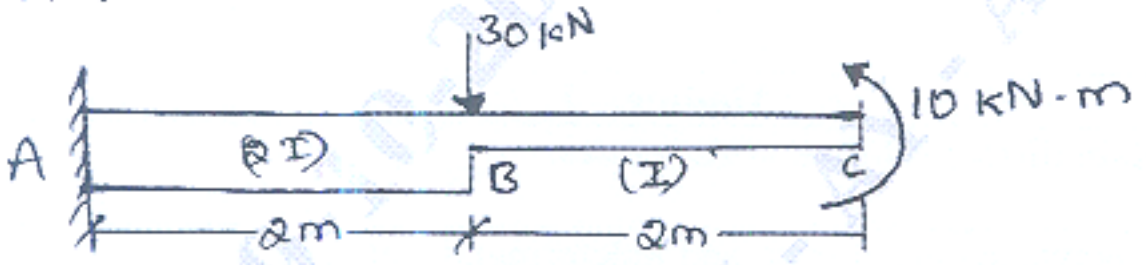


Fig.Q3(b)

OR

Q.4	a.	Determine the vertical deflection at point C for the frame shown in the Fig.Q4(a) by strain energy method.	10	L3	CO2

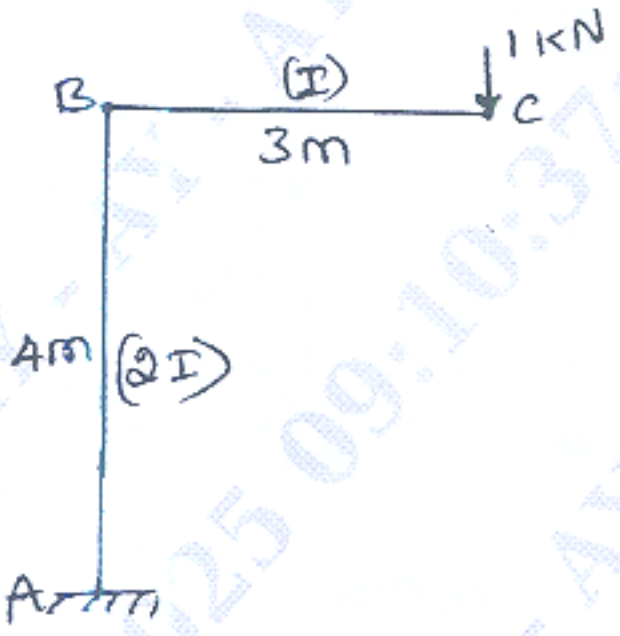


Fig.Q4(a)

	b.	Determine deflection under the load for the simply supported beam shown in Fig.Q4(b) by Castigliano's theorem.	10	L3	CO2

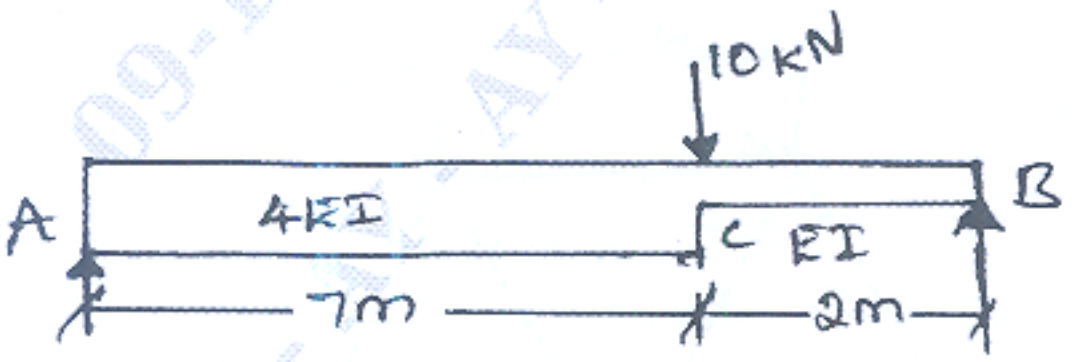
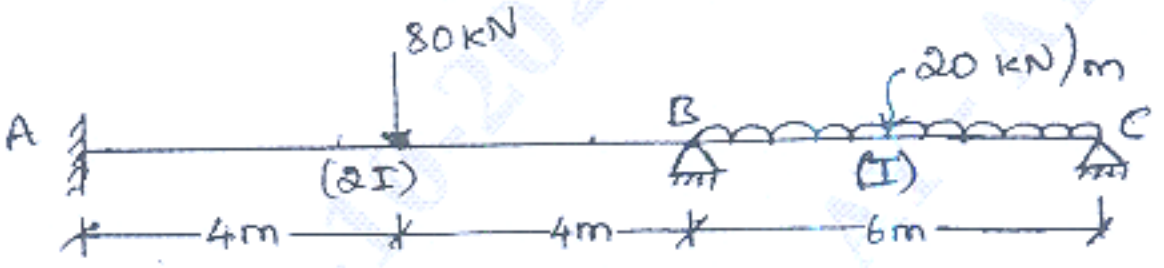
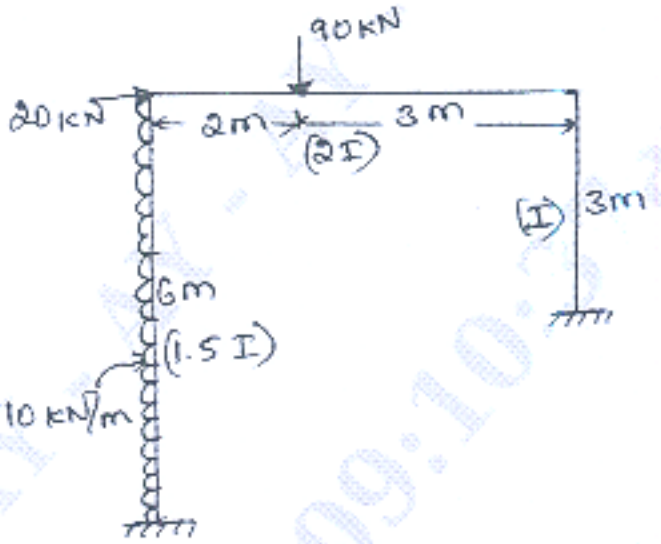
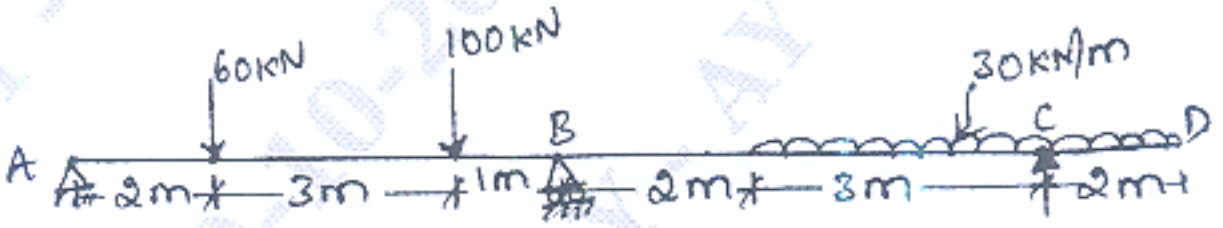
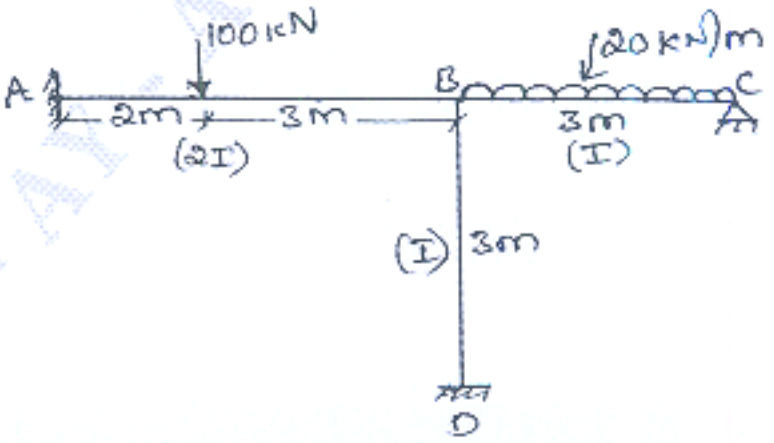


Fig.Q4(b)

Module – 3

Q.5		A three hinged parabolic arch hinged at supports and crown has a span of 24 m and central rise 4 m. It carries a concentrated load of 50 kN at 18 m from left support and udl of 30 kN/m over left half portion. Determine normal thrust, radial shear at 6 m from left support and draw B.M.D.	20	L3	CO3

		OR			
Q.6		A cable of span 120 m and dip 10 m carries a load of 6 kN/m of horizontal span. Find the maximum and minimum tension in the cable and the inclination of cable at the support. Find the forces transmitted. i) If cables passes over a smooth pulleys ii) If cable passes over a saddle on top of pier. The anchor cable is at 30° to the horizontal. Maximum permissible stress is 200 N/mm^2 and height of pier is 15 m, determining moment, length of cable and size of cable.	**20**	**L3**	**CO3**
		Module – 4			
Q.7		Analyze the beam shown in Fig.Q7 by slope deflection method. Relative to support A support 'B' sinks by 1 mm and support C rises by 0.5 mm. Take EI = 30000 kN-m^2. Draw SFD, BMD and elastic curve.  Fig.Q7	**20**	**L3**	**CO4**
		OR			
Q.8		Analyse the frame shown in Fig.Q8 by slope deflection method. Draw BMD and elastic curve.  Fig.Q8	**20**	**L3**	**CO4**
		Module – 5			
Q.9		Analyse the beam shown in Fig.Q9 by moment distribution method. Draw SFD, BMD and Elastic curve.  Fig.Q9	**20**	**L3**	**CO5**
		OR			
Q.10		Analyse the frame shown in Fig.Q10 by moment distribution method. Draw BMD and Elastic curve.  Fig.Q10	**20**	**L3**	**CO5**

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