



R22 Regulation

Subject code:4E6AD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech VI Semester Supplementary Examinations, November 2025

STRUCTURAL ANALYSIS-II

(CE)

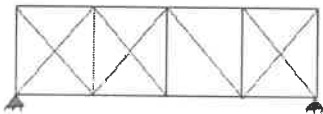
Maximum Marks: 60

Date:13.11.2025

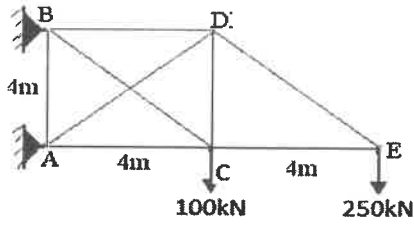
Duration: 3 hours

- Note:
- 1.This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

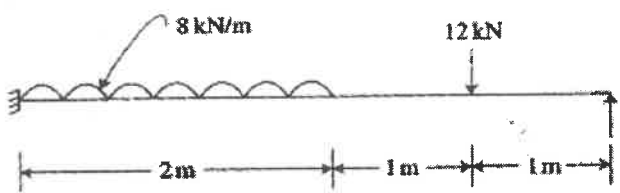
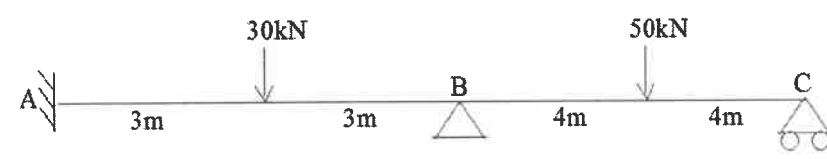
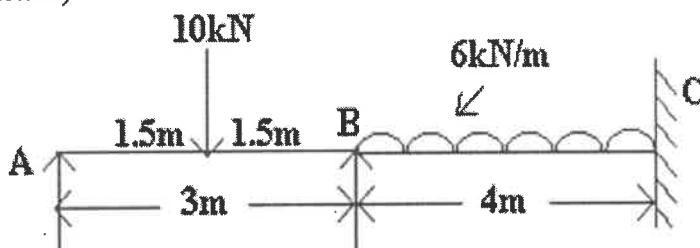
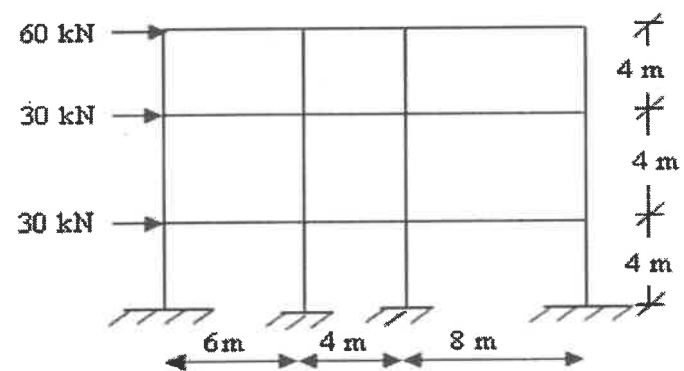
Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	What is the static indeterminacy of truss shown in figure? 	1M	1	BL3
b)	What is the effect of rib shortening in two hinged arch?	1M	1	BL2
c)	List the basic steps in slope deflection method.	1M	2	BL1
d)	What is a carryover factor and distributor factor in a moment distribution method?	1M	2	BL1
e)	Write the significance of stiffness factor in Kani's method of analysis.	1M	3	BL1
f)	Give the two advantages of Kani's method over moment distribution method.	1M	3	BL2
g)	Define Static and Kinematic Indeterminacy with an example.	1M	4	BL1
h)	When is the stiffness method more suitable than flexibility method?	1M	4	BL2
i)	Sketch the ILDs for the support reactions in a simply supported beam.	1M	5	BL2
j)	State the assumptions in Portal method.	1M	5	BL1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	A truss is loaded as shown. All the members of the truss have same cross sectional area. Find the axial force in the member BC and DE. 	10M	1	BL4

OR				
3	A two hinged parabolic arch of span 36 m and central rise 8 m carries a uniformly distributed load of 40 KN/m over left half of span. Determine the position and magnitude of maximum bending moment and also find the normal thrust and radial shear at 9 m from the left support. Assume that the moment of inertia at a section varies as a secant of the inclination at the section.	10M	1	BL4
4	Analyze the building frame subjected to horizontal force (due to wind) shown in Figure. Sketch the bending moment diagram by slope deflection method.	10M	2	BL5
OR				
5	Analyze the portal frame shown below by moment distribution method.	10M	2	BL4
6	Analyze the frame shown in figure by Kani's method	10M	3	BL4
OR				

7	<p>Using the Kani's method, analyze the structure shown in figure.</p> 	10M	3	BL4
8	<p>Analyze the continuous beam shown in figure by Stiffness method. Assume uniform flexural rigidity of beam AB and BC = $EI = 12 \times 10^{11}$ Nmm².</p> 	10M	4	BL5
OR				
9	<p>Using Flexibility method of analysis, find the support moments for the two-span continuous beam loaded as shown in Figure. Sketch the BMD. ($EI = \text{constant}$).</p> 	10M	4	BL4
10	<p>Draw the influence line for moment at 'B' M_B for the two span continuous beam ABC simply supported at A and C, AB=4m, BC=5m. EI is constant.</p>	10M	5	BL4
OR				
11	<p>Analyse the frame shown in figure by using Portal method.</p> 	10M	5	BL5

