R20 Regulation *Subject code: 3P5AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, November 2025

STRUCTURAL ANALYSIS - II

(CE)

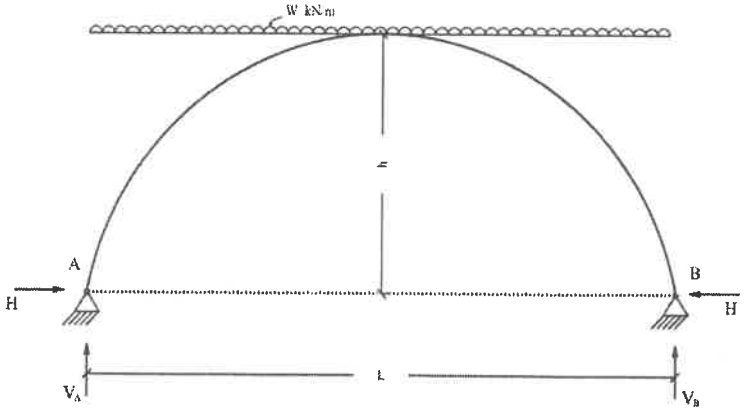
Maximum Marks: 70 Date: 20.11.2025 Duration: 3 hours

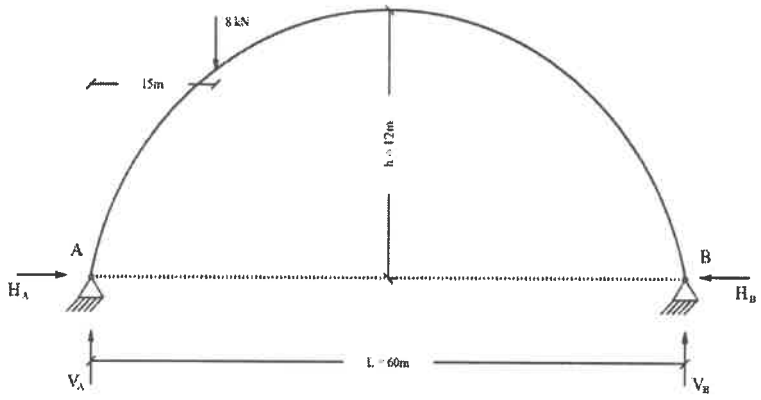
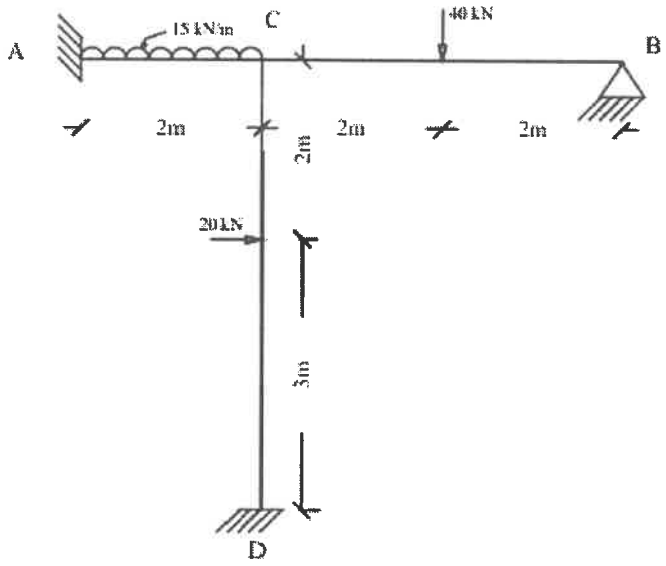
Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

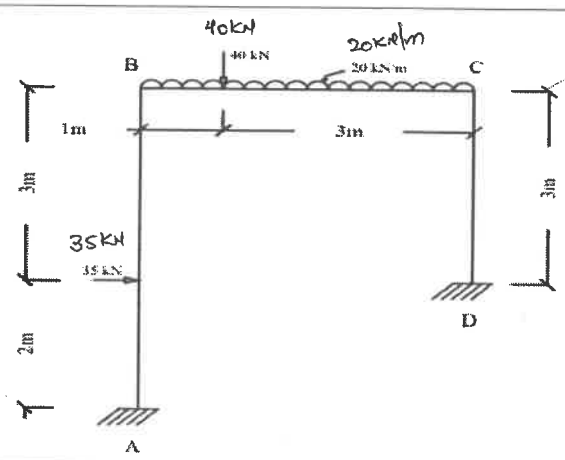
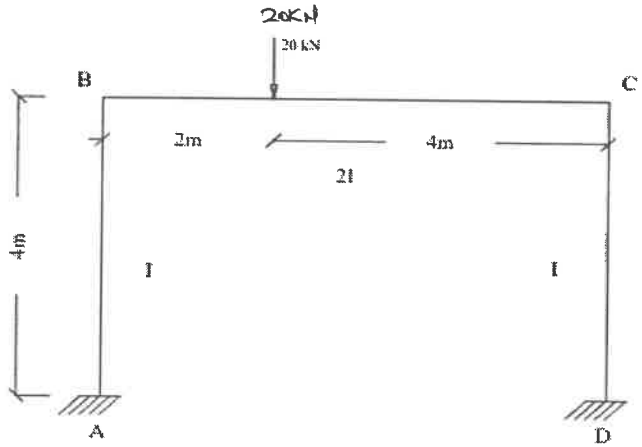
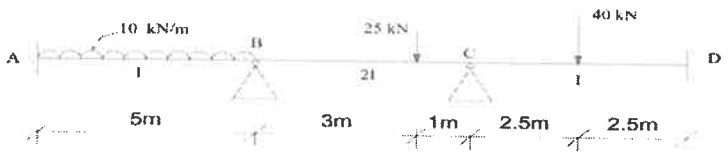
Part-A

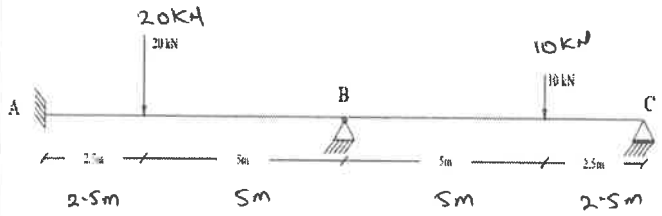
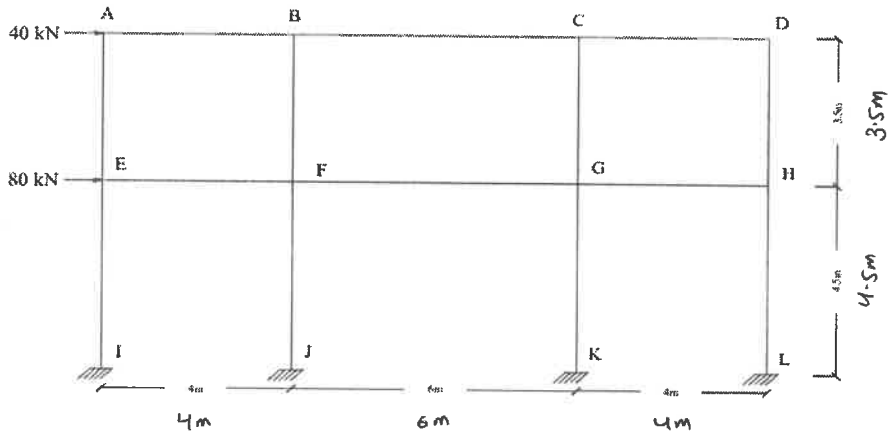
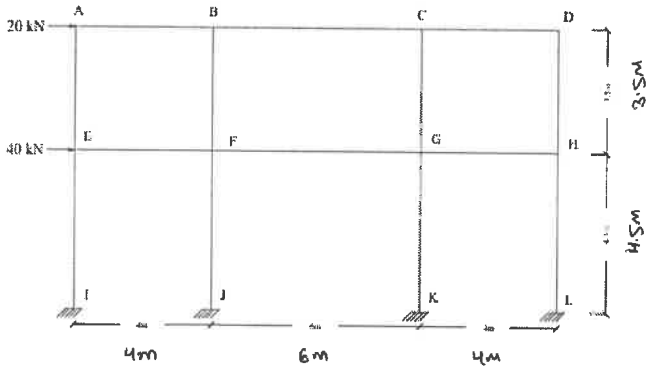
All the following questions carry equal marks (10X2M=20 Marks)		Marks	CO	BTL
1	Define the indeterminate structures.	2M	1	L1
2	Write formula for Normal thrust and radial shear in two hinged arch.	2M	1	L1
3	What are the conditions of occuring Sway analysis?	2M	2	L1
4	Define the term Carry over moment for fixed and hinged support.	2M	2	L1
5	Write the condition for Displacement factor in Kani's method?	2M	3	L1
6	Write formula for Rotation factor?	2M	3	L1
7	Differentiate between pin jointed and rigid jointed plane frames.	2M	4	L1
8	Name types of matrix methods of analysis.	2M	4	L1
9	What are the Approximate methods of analysis?	2M	5	L1
10	Define ILD.	2M	5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
11	A parabolic two hinged arch carrying UDL of intensity 'W' kN/m throughout its span as shown in fig. Find the equation of horizontal thrust. 	10M	1	L2
	OR			
12	ATwo Hinged Parabolic Arch of rise 12m and span 60m carrying a point load 8KN at a distance 15m from left support.	10M	1	L2

	(i) Calculate the horizontal thrust. (ii) Find binding moment at load for the Arch. 			
13	Analyse the frame shown in figure.Draw B.M.D by using slope deflection method. 	10M	2	L2
	OR			
14	Using slope deflection method Analyse the frame loaded and supported as shown in fig. Also draw BMD and deflected shape of frame.	10M	2	L2

				
15	Analyse the frame whose both ends are fixed as shown using kani's method and the given frame is single bay-single storey. 	10M	3	L2
	OR			
16	Analyse the three span continuous beam show in fig. using Kani's  method.	10M	3	L2
17	State Castigliano's Second Theorem. Derive the derivation	10M	4	L2
	OR			

18	AContinuous beam whose left end is fixed and right end is roller supported as shown in figure. Analyse the beam by matrix method. 	10M	4	L2
19	Using Approximate Method of Analysis, Analyze the Frame by Cantilever method. 	10M	5	L2
	OR			
20	Using Cantilever method, Analyse the three bay-Double storey frame. 	10M	5	L2