R22 Regulation *Subject code: 4E6AD*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Regular/Supplementary Examinations, April 2026

STRUCTURAL ANALYSIS-II

(CE)

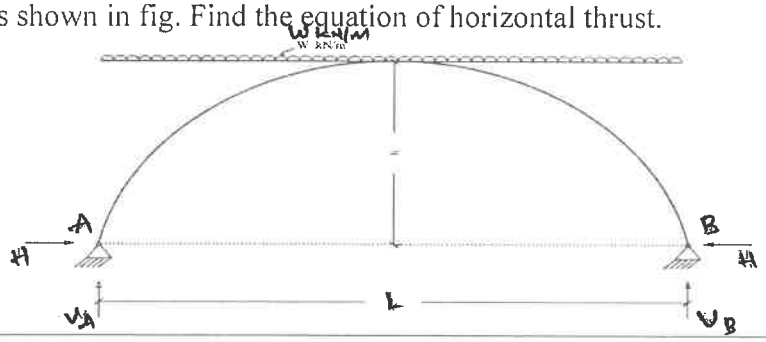
Maximum Marks: 60 Date:21.04.2026 Duration: 3 hours

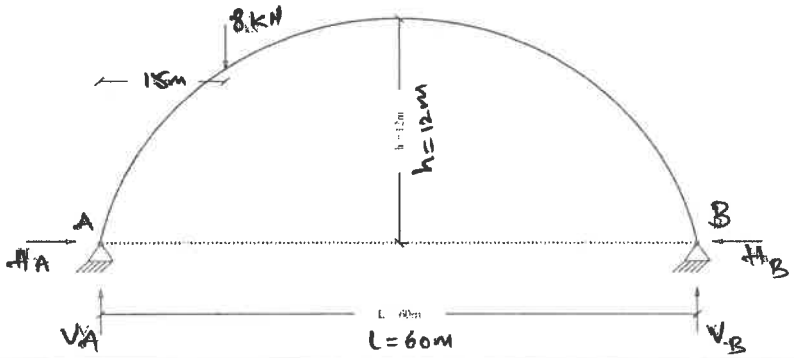
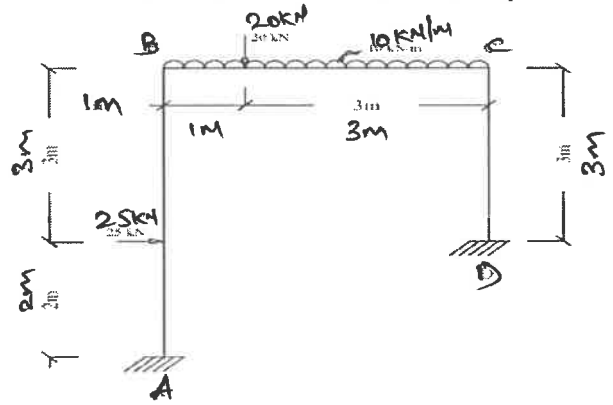
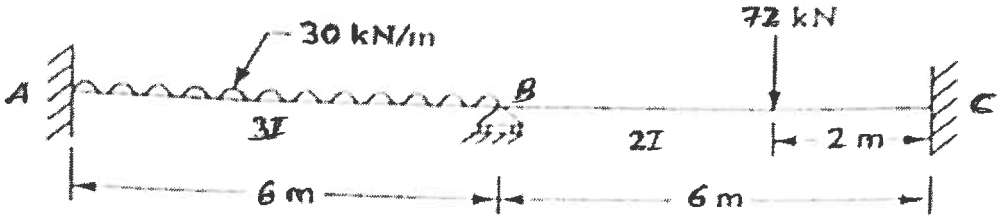
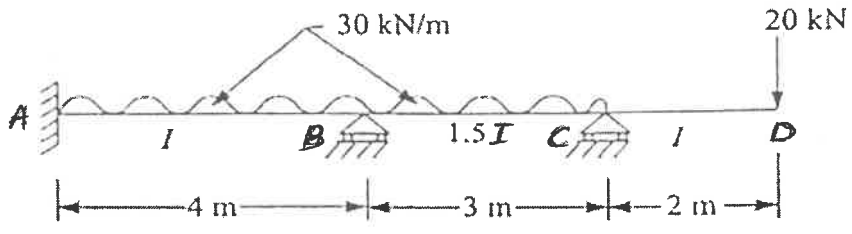
Note: **1.This question paper contains two parts A and B.**
2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
3. Part B consists of 5 Units. Answer any one full question from each unit.
4. Each question carries 10 marks and may have a, b, c, d as sub questions.

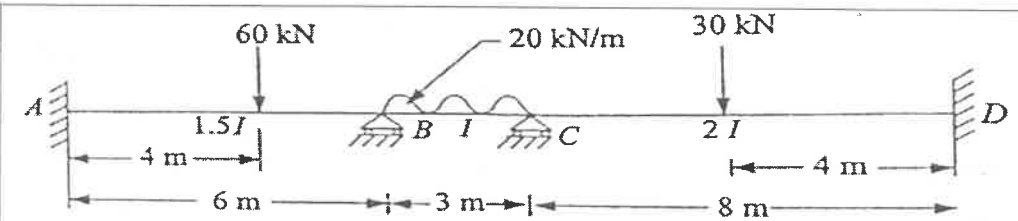
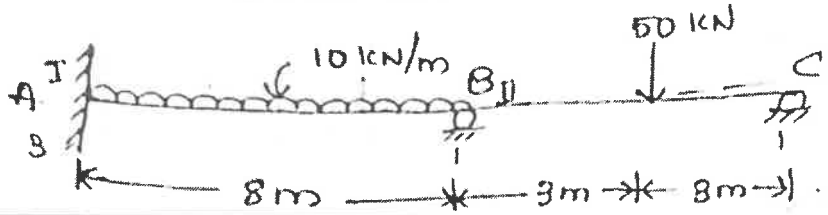
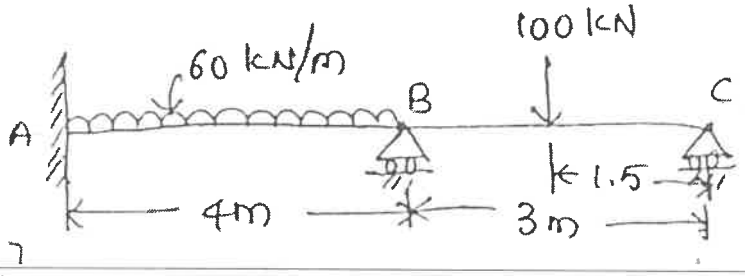
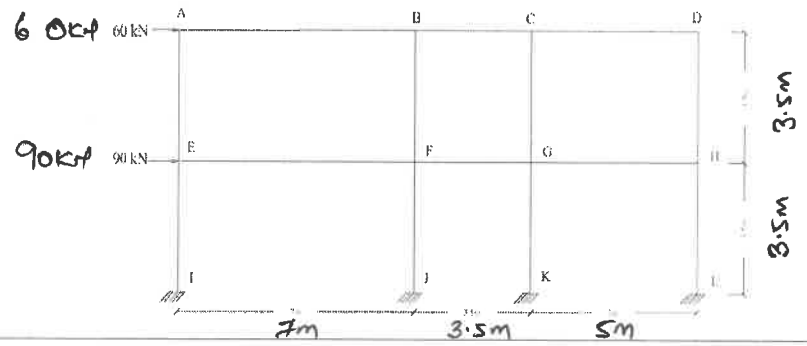
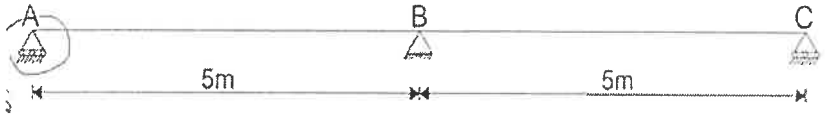
Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	BTL
1.a)	Define static indeterminacy.	1M	CO1	L1
b)	What is a two-hinged arch?	1M	CO1	L1
c)	What is slope deflection method?	1M	CO2	L1
d)	Define carry-over factor.	1M	CO2	L1
e)	What is Kani's method?	1M	CO3	L1
f)	Define rotation factor.	1M	CO3	L1
g)	Define stiffness matrix.	1M	CO4	L1
h)	What is flexibility method?	1M	CO4	L1
i)	What is portal method?	1M	CO5	L1
j)	Define influence line.	1M	CO5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	BTL
2	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	CO1	L2
	OR			
3	A Two Hinged Parabolic Arch of rise 12m and span 60m carrying a point load 8KN at a distance 15m from left support. (i) Calculate the horizontal thrust. (ii) Find binding moment at load for the Arch.	10M	CO1	L2

				
4	Analyze the frame loaded and supported as shown in fig using moment distribution method. Also draw BMD and deflected shape of frame. 	10M	CO2	L4
	OR			
5	Analyse the continuous beam shown in Figure by slope deflection method and draw bending moment and shear force diagrams. Draw the elastic curve also. 	10M	CO2	L4
6	Analyse the Continous Beam shown in the Figure by Kani's Method. 	10M	CO3	L4
	OR			
7	Analyse the Continous Beam shown in the Figure by Kani's Method.	10M	CO3	L4

				
8	Determine using Flexibility matrix method, analyse the frame shown in Figure. Take EI constant throughout. 	10M	CO4	L2
	OR			
9	Determine using stiffness matrix method, analyse the frame shown in Figure. Take EI constant throughout. 	10M	CO4	L2
10	Analyse the Frame by Cantilever method. 	10M	CO5	L4
	OR			
11	For the continuous beam given in figure determine the influence lines for 1. Reaction at A, RA 2. Reaction at B, RB Make ILD at 1m interval. 	10M	CO5	L2