R20 Regulation *Subject code:3P5AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Regular/Supplementary Examinations, February 2024

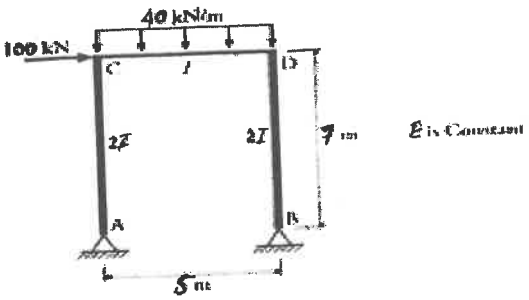
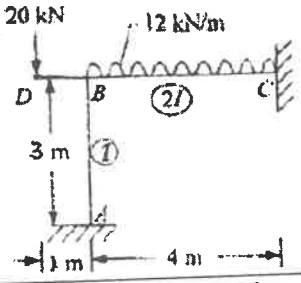
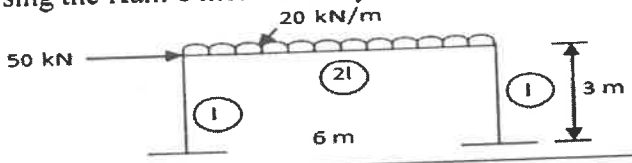
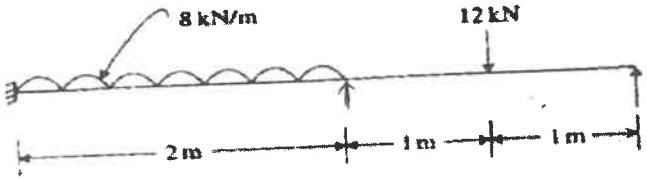
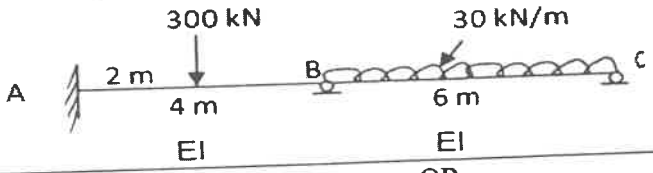
STRUCTURAL ANALYSIS-II

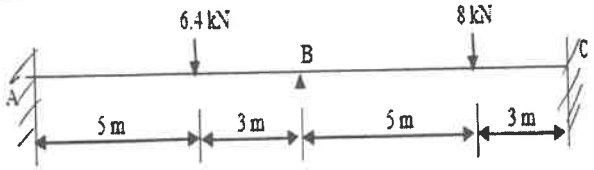
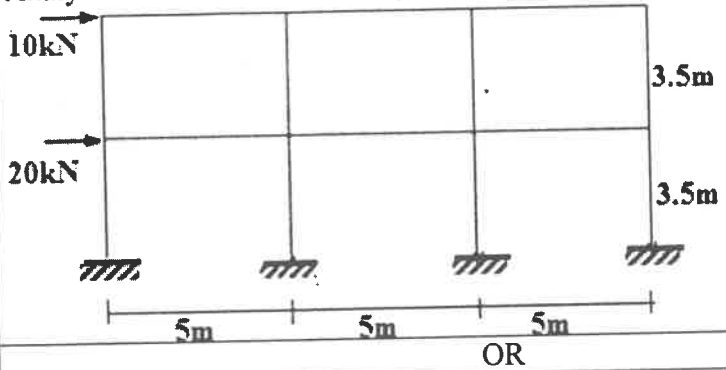
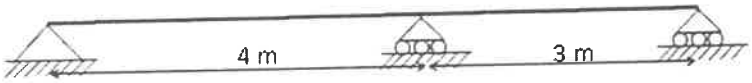
(Civil Engineering)

Maximum Marks: 70 Date:17.02.2024 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	CO	Bloom Tx
All the following questions carry equal marks (10x2M=20 Marks)			
1	What is the effect of temperature on two hinged arch.	CO1	L1
2	Explain Rib- shortening in the case of arches.	CO1	L2
3	List out the assumptions made in slope-deflection method.	CO2	L4
4	Define stiffness and carry over factor.	CO2	L1
5	Write advantages of Kani's method.	CO3	L4
6	Outline the Kanis iteration process for beams	CO3	L2
7	distinct approaches to Matrix methods	CO4	L3
8	Classify degree of static and kinematic indeterminacy	CO4	L4
9	What are the uses of ILD?	CO5	L2
10	Justify which method is more accurate in analysis of multistory frames for horizontal forces	CO5	L3
	Part-B		
Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
11	A two-hinged parabolic arch of span 30m and rise 6m carries a point load, 60KN, acting at 7.5m from the left end, respectively. The moment of inertia varies as the secant of slope. Determine the horizontal thrust. [10M]	CO1	L3
	OR		
12	An RCC two-hinged parabolic arch has 40 m span and central rise of 6 m, is subjected to a concentrated load of 90 kN at centre. Determine the horizontal thrust, if the arch is subjected to rise in temperature of 30^0C. The second moment of the area of the arch rib varies as the secant of the slope of the rib axis. Assume the cross-section of the arch is 900 mm × 400 mm and concrete of grade M35. [10M]	CO1	L3
13	Analyze the continuous beam shown in figure below, using slope deflection method. [10M]	CO2	L4

			
	OR		
14	Analyze the frame shown below by moment distribution method and draw BMD diagram. [10M] 	CO2	L4
15	Using the Kani's method analyze the frame show in fig. [10m] 	CO3	L4
	OR		
16	Using Kani's method, analyze the portal frame shown in figure below. [10m] 	CO3	L4
17	Analyze the continuous beam shown in figure by using flexibility method. [10m] 	CO4	L4
	OR		
18	Analyze the continuous beam shown below by matrix stiffness method and draw the bending moment diagram. [10m]	CO4	L4

			
19	Analyze the frame shown in Figure 3 using portal method. [10M] 	CO5	BL4
	OR		
20	Draw the influence line diagram for the reaction at the left support of a continuous beam shown in figure. [10M] 	CO5	L4