R20 Regulation *Subject code: 3P5AB*

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech V Semester Supplementary Examinations, July 2024

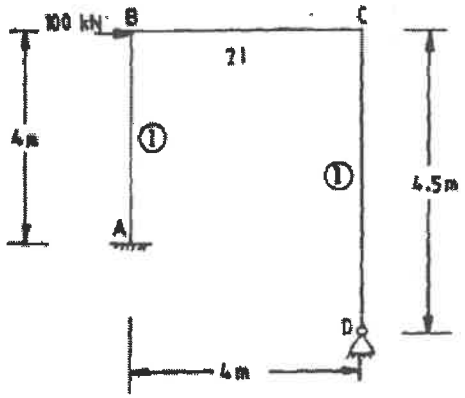
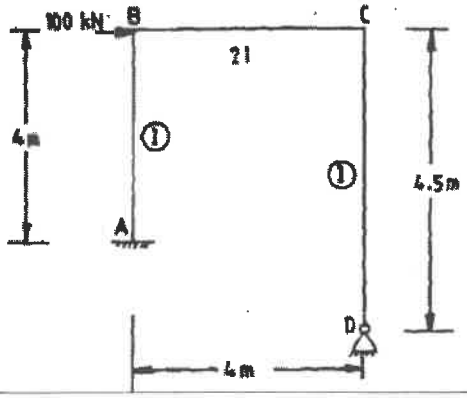
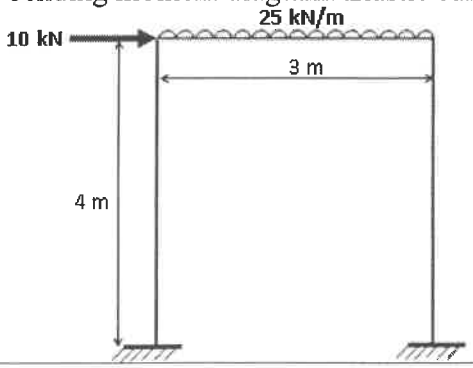
STRUCTURAL ANALYSIS-II

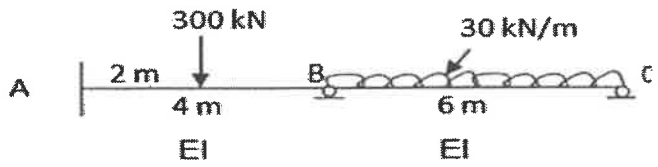
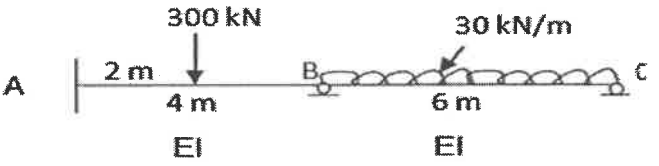
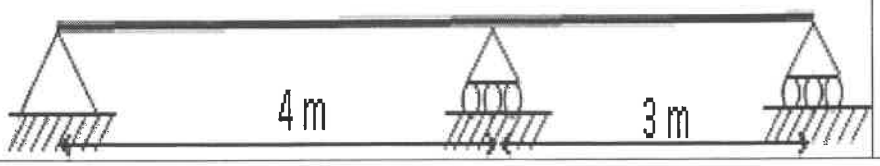
(CE)

Maximum Marks: 70 Date:22.07.2024 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 load transfer Mechanism in an arch.	CO1	BL1
2	Exact analysis is referred to which type of analysis explain	CO1	BL1
3	Write the generalized form of slope deflection equation.	CO2	BL1
4	Define stiffness and write the basic equation of stiffness method.	CO2	BL1
5	Write advantages of Kani's method.	CO3	BL1
6	Define collapse load and load factor.	CO3	BL1
7	Mention the situations where in sway will occur in portal frame.	CO4	BL1
8	Compare flexibility matrix and stiffness matrix	CO4	BL1
9	What are the different methods for horizontal loads	CO5	BL1
10	Outline the importance of influence line diagram (ILD)	CO5	BL1
	Part-B		
Answer All the following questions. (5X10M=50Marks)			Bloom Tx level
11	A two hinged parabolic arch rib has a span of 8m has a central rise 2.5m. It is loaded with uniformly distribute load 2kN/m over a half of the span from the left support. Determine the end reactions, horizontal thrust. [10]	CO1	BL3
	OR		
12	A two-hinged parabolic arch has 30 m span and 5 m central rise. It is subjected to a concentrated load of 80 kN at a distance of 10 m from the right support in addition to uniformly distributed load of 25 kN/m over the left half of the span. The second moment of the area of the arch rib varies as the secant of the slope of the rib axis. Determine the horizontal thrust and maximum positive bending moments in the arch. [10]	CO1	BL4

13	Analyze the frame shown in the figure by Moment distribution Method.  [10]	CO2	BL4
	OR		
14	Analyze the portal frame shown in figure using slope deflection method. [10]  	CO2	BL4
15	Using Kani's method, analyze the frame shown in figure and draw the bending moment diagram. Elastic curve. [10]  	CO3	BL4
	OR		
16	Using Kani's method, determine the support moments for the three-span continuous beam with fixed end supports, having spans AB, BC and CD. Span AB of length 4m carries an eccentric point load of 80kN, at 1m from point A. Span BC carries an UDL of 20 kN/m of 6m span and span CD carries a concentric point load of 60 kN at mid span and having a span of 4m (EI constant). Sketch the B.M. and S.F.D. [10]	CO3	BL4

17	Analyze the continuous beam shown in figure by using stiffness method. Draw the shear force and bending moment diagram. [10] 	CO4	BL4
	OR		
18	Analyze the continuous beam shown in figure by using stiffness method. [10] 	CO4	BL4
19	Write the usefulness of MULLER-BRESLAU principle in detail. [10]	CO5	BL3
	OR		
20	Draw the influence line diagram for the reaction at the right support of a continuous beam shown in figure. [10] 	CO5	BL4