



R22 Regulation

Subject code:4E6AD

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

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

B.Tech VI Semester Regular Examinations, May 2025

STRUCTURAL ANALYSIS-II

(CE)

Maximum Marks: 60

Date:23.06.2025

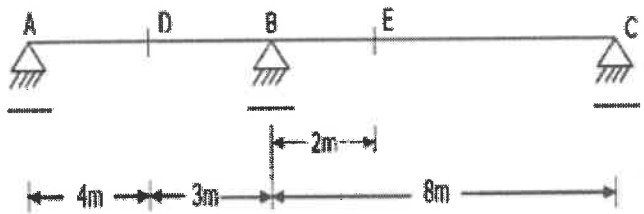
Duration: 3 hours

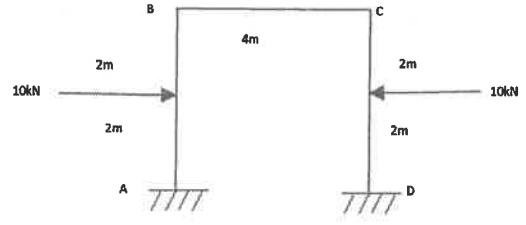
- Note:**
- 1.This question paper contains two parts A and B.
 2. Part A is compulsory which carries 10 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10X1M=10 Marks)		Marks	CO	Bloom Tx
1.a)	What is a statically indeterminate structure?	1M	CO1	L1
b)	Write the classification of arches?	1M	CO1	L2
c)	Write Castigliano's theorem?	1M	CO2	L1
d)	Mention the advantages of slope deflection method.	1M	CO2	L1
e)	Write down the merits of Kani's methods of analysis.	1M	CO3	L2
f)	What are the advantages of Kani's method over slope-deflection method	1M	CO3	L1
g)	What is static and kinematic indeterminacy?	1M	CO4	L2
h)	List out various matrix methods of analysis.	1M	CO4	L2
i)	Compare portal method and cantilever method of analysis.	1M	CO5	L1
j)	Define ILD?	1M	CO5	L1

Part-B

Answer All the following questions. (5X10M=50Marks)		Marks	CO	Bloom Tx
2	How do you calculate the degree of kinematic indeterminacy for a beam, frame, or truss?	10M	CO1	L2
OR				
3	Find the degree of indeterminacy of the beam as shown in fig. 	10M	CO1	L4
4	What are fixed-end moments (FEM), and how are they calculated for various loading conditions?	10M	CO2	L2
OR				
5	A beam ABC 14m long fixed at A&C and continuous over support B is loaded with uniformly distributed load of 3kN/m over span AB=6m and a concentrated load of 10kN at mid span of BC. Calculate fixed end moments and draw BMD.	10M	CO2	L3

6	Can you explain the stiffness factor and carry-over factor in Kani's Method?	10M	CO3	L3
OR				
7	Draw BMD for the given portal frame by using Kani's method of analysis.	10M	CO3	L4
				
8	Explain in detail about the procedure for the analysis of continuous beam by using the stiffness matrix method.	10M	CO4	L2
OR				
9	Write about various matrix methods of analysis.	10M	CO4	L2
10	A simply supported beam of span 8m carries a moving load of 12kN at 4m from LHS. Draw the ILD and also SFD & BMD.	10M	CO5	L3
OR				
11	Write about various approximate methods of analysis.	10M	CO5	L3