Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S4 (R) (FT/WP) Examinations April 2026 (2024 Scheme)

Course Code: PCCET403

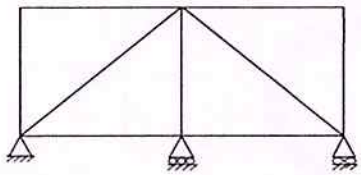
Course Name: STRUCTURAL ANALYSIS-II

Max. Marks: 60 Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	Find the kinematic indeterminacy for the structure shown in figure	1	(3)



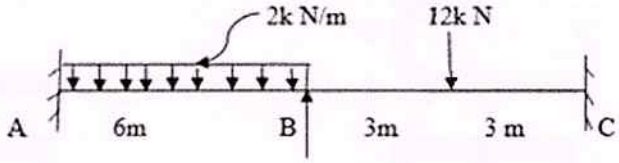
2	Explain distribution factor and carry over moment.	1	(3)
3	What are the basic assumptions of the portal method for lateral load analysis?	2	(3)
4	Explain the terms i) Shape factor ii) Plastic Hinge iii) Plastic Moment Capacity	3	(3)
5	Differentiate Force method and Displacement method of analysis	4	(3)
6	Explain the need of adopting matrix analysis in structural analysis	4	(3)
7	What is the relationship between stiffness and flexibility matrix	4	(3)
8	Explain the steps involved in the direct stiffness method.	4	(3)

PART B

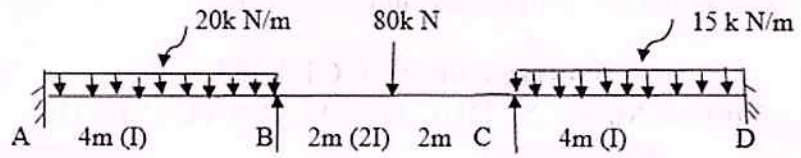
(Answer any one full question from each module, each question carries 9 marks)

Module -1

9	Analyse the beam loaded as shown in figure by using slope deflection method and draw bending moment diagram.	1	(9)

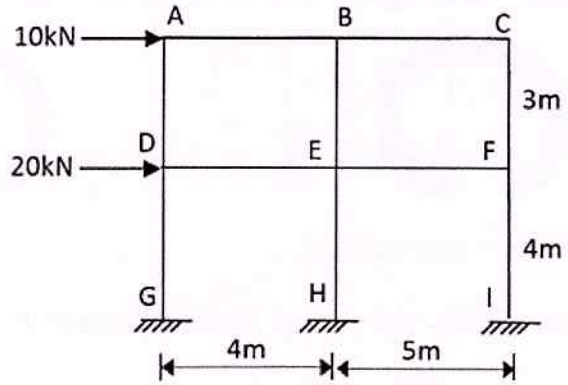


10 Analyse the continuous beam as shown in figure by moment distribution method and draw bending moment diagram. 1 (9)

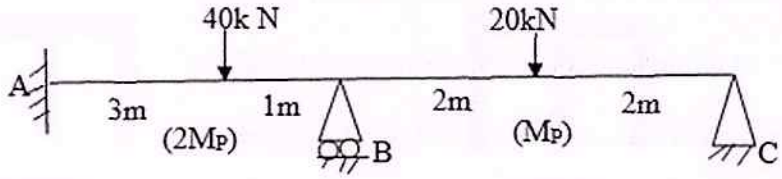


Module -2

11 Analyse and determine the beam and column moments for the frame shown in figure below by Portal method. Flexural rigidity EI is same for all members. 2 (9)

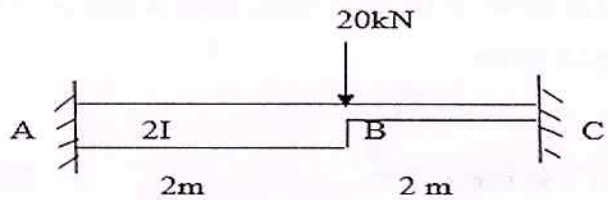


12 Determine the plastic moment capacity M_P for the beam shown in figure. Take the load factor = 1.5. 3 (9)

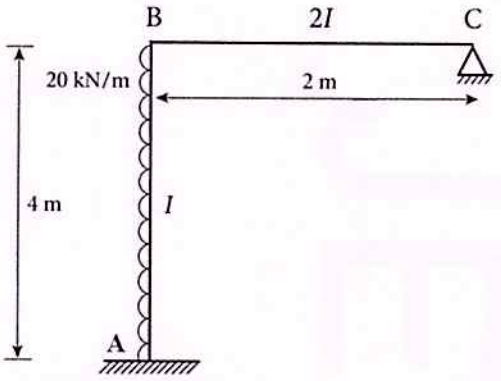


Module -3

13 Analyse the beam shown in figure by flexibility method and draw the bending moment diagram. Flexural rigidity of AB is twice that of BC. 4 (9)

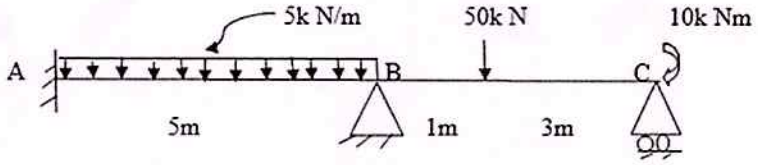


14 Analyse the frame shown in figure by flexibility method and draw the bending moment diagram. 4 (9)

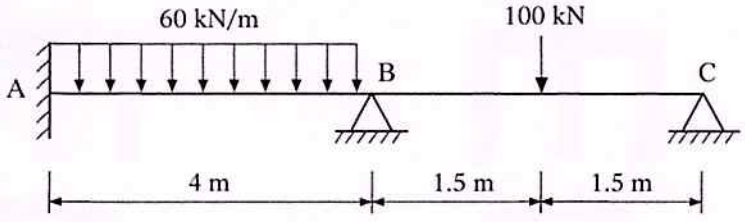


Module -4

15 Analyse the beam shown in figure using stiffness method and draw the BMD 4 (9)



16 Analyse the beam shown in figure using direct stiffness method shown in figure and determine the member forces and moments. 4 (9)



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