

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)*

UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL/MAY 2026

*Fifth Semester**Civil Engineering*

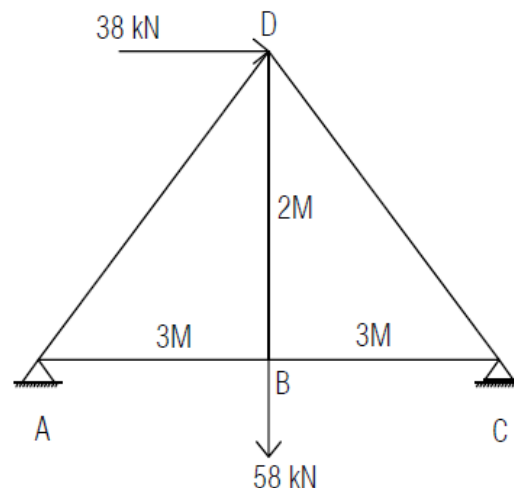
CE3502 – STRUCTURAL ANALYSIS - I

*Regulations - 2021**Duration : 3 Hrs**Maximum: 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10 X 2=20)**

Q.No.	Questions	BTL	CO	Marks
1.	List the limitations of method of joints.	L2	1	2
2.	State the conditions for redundant frame.	L2	1	2
3.	What are the known moments expressed in slope deflection equation?	L3	2	2
4.	State the limitations of Slope deflection method.	L2	2	2
5.	In a member AB, if a moment of -20 kNm is applied at A, then calculate the moment carried over to B.	L3	3	2
6.	What is the sum of distribution factors at a joint?	L3	3	2
7.	Write the element Flexibility matrix for a beam member and truss member.	L3	4	2
8.	State the fundamental compatibility condition used in the flexibility method.	L2	4	2
9.	Write down the displacement transformation matrix.	L1	5	2
10.	List out the properties of rotation matrix.	L2	5	2

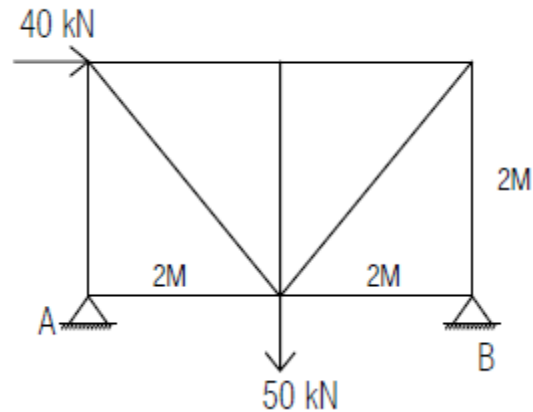
PART - B (ANSWER ALL QUESTIONS) (Marks 5 X 16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	a Analyze the truss by method of joints.	L4	1	16



Or

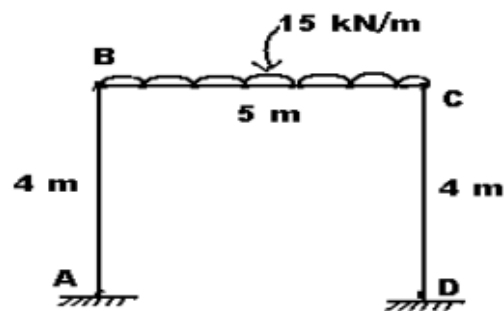
b	Calculate the member forces for the truss by method of sections.	L4	1	16
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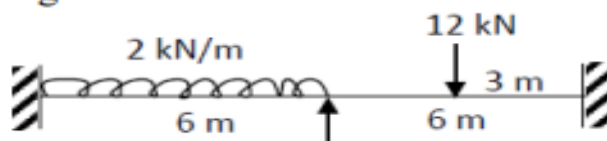
12.	a	Explain the step-by-step procedure to analyze the continuous beam ABC by using the slope deflection method.	L4	2	16
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Or

b	Draw the bending moment diagram for the frame as shown in Figure by slope deflection method.	L4	2	16
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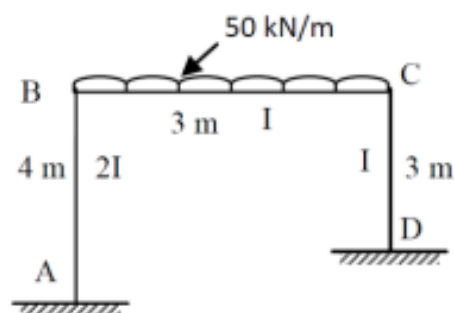


13.	a	Analyze the continuous beam as shown in Figure and draw the bending moment diagram by using moment distribution method.	L4	3	16
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Or

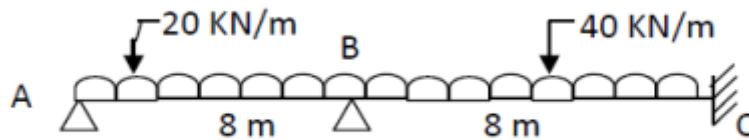
b	Draw the BMD and SFD for the given Frame by moment distribution method	L4	3	16
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14. a A cantilever is subjected to a single concentrated load 'P' at the middle of the span. Calculate the deflection at the free end using flexibility matrix method. EI is uniform throughout. L5 4 16

Or

- b Explain the step-by-step procedure to analyze the pin jointed plane frame by using flexibility method with an example. L5 4 16
15. a Examine the continuous beam ABC shown in Fig below by stiffness method and also draw the shear force diagram. L4 5 16



Or

- b Explain the step-by-step procedure to analyze the pin jointed plane frame by using stiffness method with an example. L4 5 16