PRN:		Course Code:	P68PC102

First Year M. **Tech** End Semester Examination Winter 2024

Advanced Structural Analysis 000411

Day and Date: Mon 1- 2 DEC 2024 Max Marks: **50**

Time: 10:30AM To 01:30PM Duration: **03** hrs

Instructions: 1) All questions are compulsory.
2) assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Attempt any one from the following**			
a)	A semicircular beam of radius R supported at the ends. It carries point load W at center. Draw BMD and TMD.	10	L3	CO1
b)	A semicircular beam of radius R supported on three symmetrical loaded placed columns. It carries udl w per unit length. Determine reaction at support.	10	L3	CO1
Q.2	**Attempt any one from the following**			
a)	Construct ILD for shear force & bending moment at any section C for a fixed beam as shown in fig. below. Obtain ordinates of ILD at 0.2m interval.	10	L4	CO2

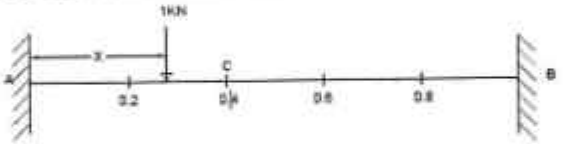


Fig.1

b)	Construct ILD for shear force at D and moment at D for a two-span continuous beam as shown in fig. 2.	10	L4	CO2

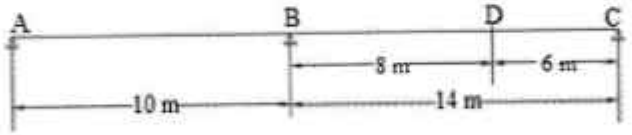


Fig.2

Q.3	**Attempt any one from the following**			
a)	Determine maximum deflection and maximum bending moment for beam column subjected UDL w/m over entire length and axial load P. Also find magnification factor for deflection and moment.	10	L4	CO3
b)	Determine maximum deflection and maximum bending moment for beam column subjected concentrated load W at center of the beam and axial load P. Also find magnification factor for deflection and moment.	10	L4	CO3
Q.4	**Attempt any one from the following**			
a)	Analyze the beam loaded &Supported as shown in fig. 3 by using flexibility matrix method.	10	L3	CO4

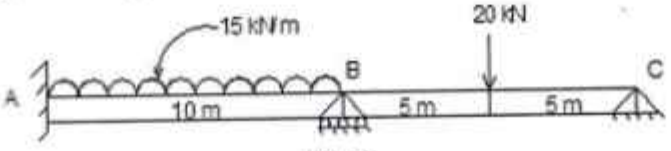


Fig.3

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b) Develop the flexibility matrix for the beam with reference to co-ordinates shown in fig. 4. 10 L4 CO4

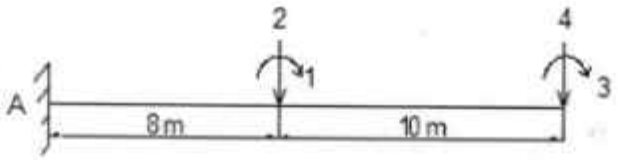


Fig. 4

Q.5 Attempt any one from the following

a) Analyze the beam using stiffness matrix method shown in the Fig 5 10 L3 CO4

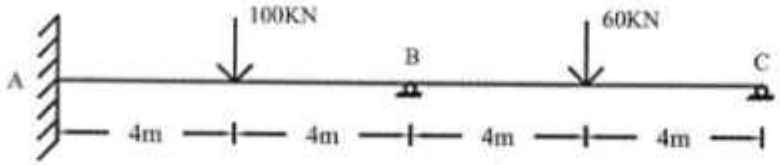


Fig.5

b) Analyze the Portal frame shown in fig. 6 by Stiffness matrix method. 10 L3 CO4

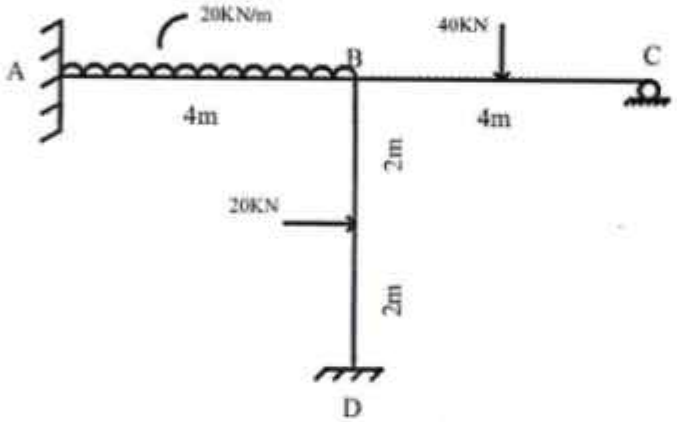


Fig. 6

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