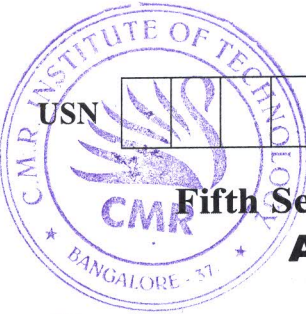


CBCS SCHEME

17CV52



USN

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Fifth Semester B.E. Degree Examination, Dec.2023/Jan.2024 Analysis of Indeterminate Structures

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 Analyse the structure shown in Fig.Q1 by slope deflection method. Sketch the bending moment and shear force diagrams.

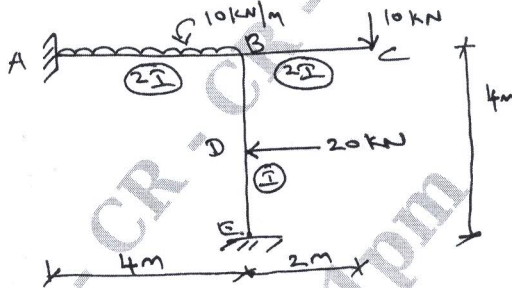


Fig.Q1

(20 Marks)

OR

- 2 Analyse the continuous beam loaded as shown in Fig.Q2 by slope deflection method and sketch the bending moment diagram. Given : $2I_{AB} = I_{BC} = 2I_{CD} = 2I$.

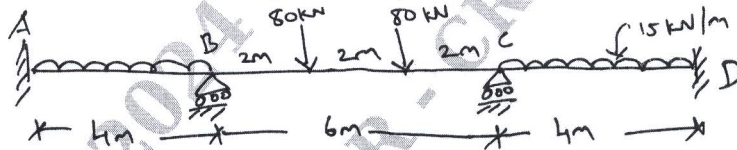


Fig.Q2

(20 Marks)

Module-2

- 3 Analyse the continuous beam loaded as shown in Fig.Q3 by moment distribution method sketch the bending moment diagram.

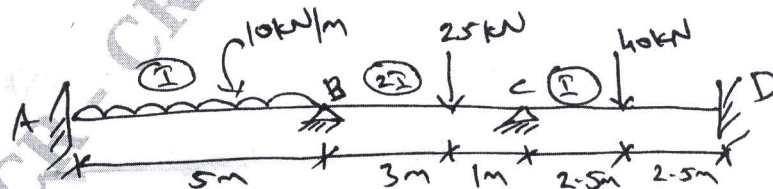


Fig.Q3

(20 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

OR

- 4 Analyse the frame loaded as shown in Fig.Q4 by moment distribution method. Sketch the bending moment diagram and shear force diagram.

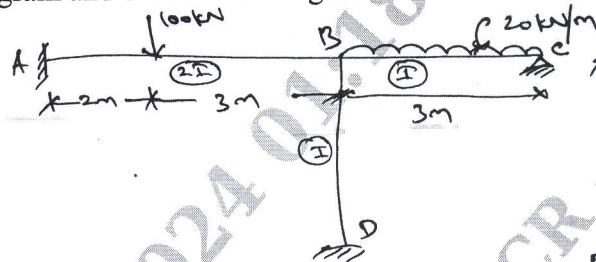


Fig.Q4

(20 Marks)

Module-3

- 5 Analyse the continuous beam by Kani's method and sketch the bending moment diagram. (Refer Fig.Q5). Given $2I_{AB} = I_{BC} = 2I_{CD} = 2I_0$.

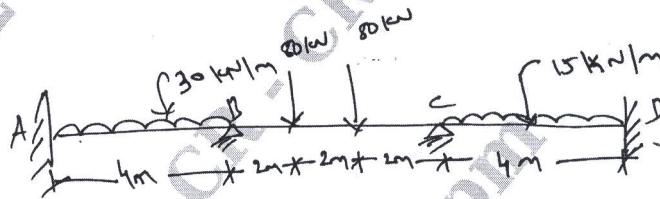


Fig.Q5

(20 Marks)

OR

- 6 Analyse the frame as shown in Fig.Q6 by Kani's method, and find the bending moment diagram.

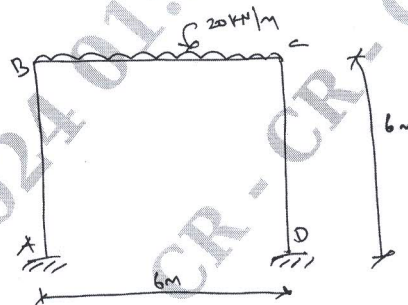


Fig.Q6

(20 Marks)

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Module-4

- 7 Analyse the continuous beam by matrix flexibility method and draw the bending moment diagram. Refer Fig.Q7.



Fig.Q7

(20 Marks)

OR

- 8 A statically indeterminate frame as shown in Fig.Q8 carries a load of 80kN. Analyse the frame by matrix flexibility method. 'A' and 'E' are same for all the members.

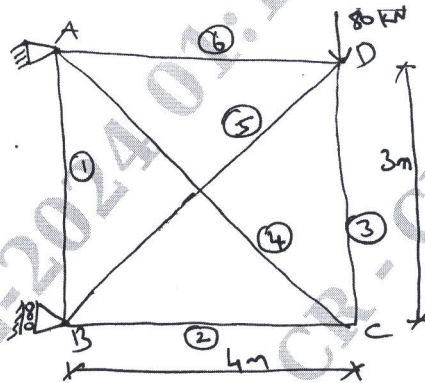


Fig.Q8

(20 Marks)

Module-5

- 9 A two span continuous beam ABC is fixed at 'A' and simply supported over the support 'B' and 'C'. AB = 6m and BC = 6m. The moments of inertia is constant throughout. It is loaded as shown in Fig.Q9. Analyse the beam by matrix stiffness method. Draw BMD.

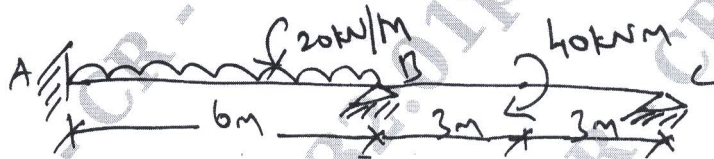


Fig.Q9

(20 Marks)

OR

- 10 Analyse the frame as shown in Fig.Q10 by matrix stiffness method and find the BMD.

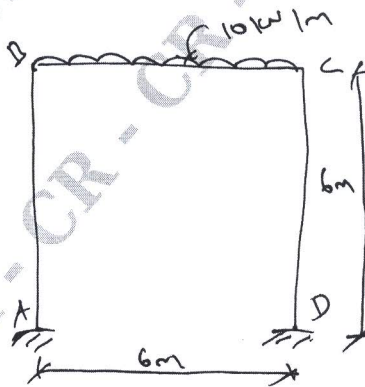


Fig.Q10

(20 Marks)

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