

# CBCS SCHEME

18CV52

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. Analysis the continuous beam shown in Fig.Q1 by slope deflection method. Draw SFD, BMD and electric curve.

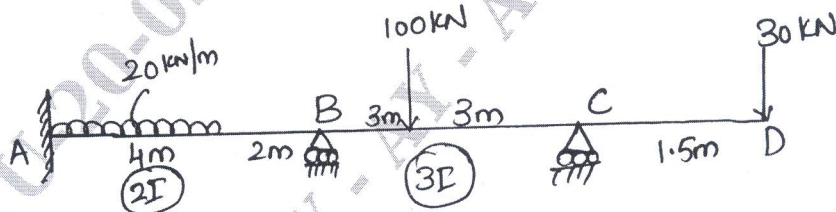


Fig.Q1

(20 Marks)

OR

2. Analysis the portal frame shown in Fig.Q2 by slope deflection method. Draw BMD and electric curve.

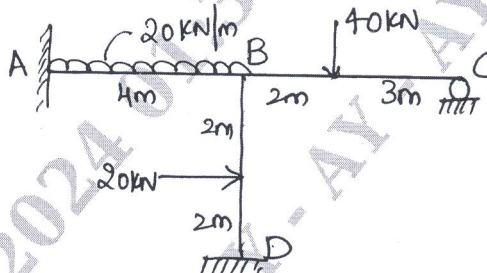


Fig.Q2

(20 Marks)

### Module-2

3. Analyse the continuous beam shown in Fig.Q3 by moment distribution method and draw SFD and BMD. Support 'B' and 'C' settles by 8mm and 3mm respectively. Take  $EI = 2 \times 10^4 \text{ kN/m}^2$ .

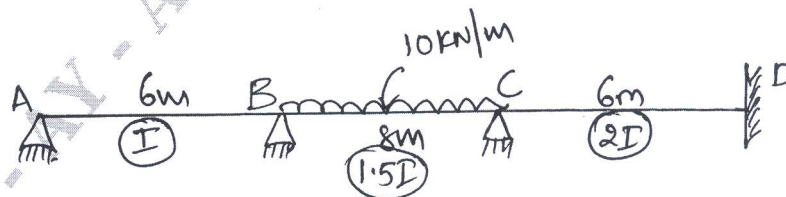


Fig.Q3

(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 shown in Fig.Q4 by moment distribution method and draw BM diagram and elastic curve.

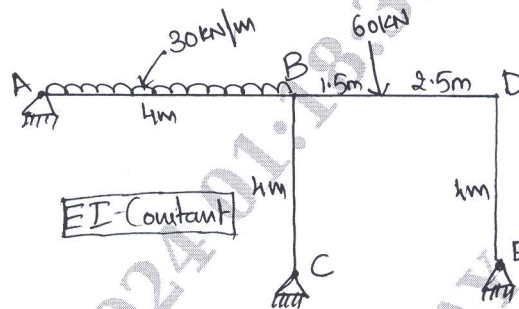


Fig.Q4

(20 Marks)

**Module-3**

- 5 Analyse the three span continuous beam shown in Fig.Q5 by Kani's method. Draw BMD, SFD and Elastic curve.

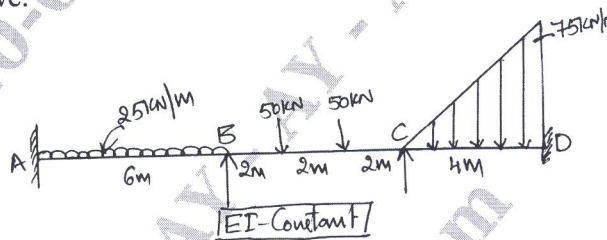


Fig.Q5

(20 Marks)

OR

- 6 Analyse the frame shown in Fig.Q6 by Kani's method. Draw BMD.

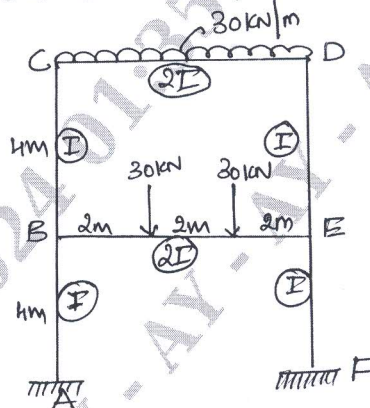


Fig.Q6

(20 Marks)

**Module-4**

- 7 Analyse the beam show in Fig.Q7 by flexibility matrix method. Draw SFD and BMD. Take EI constant.

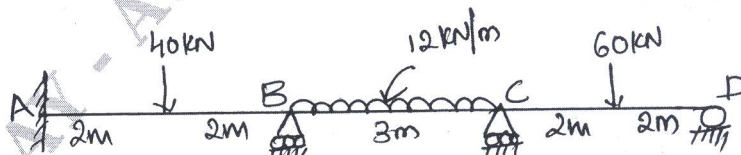


Fig.Q7

(20 Marks)

OR

- 8 Analyse the frame shown in Fig.Q8 by flexibility matrix method. Draw SFD and BMD.

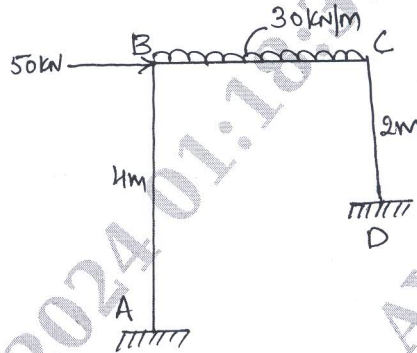


Fig.Q8

(20 Marks)

Module-5

- 9 Analyse the beam shown in Fig.Q9 by stiffness matrix method. Draw SFD and BMD.

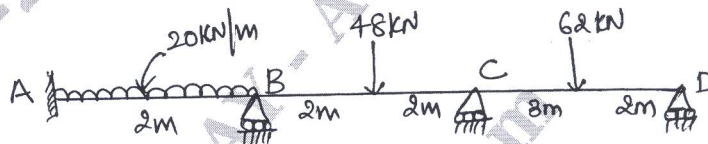


Fig.Q9

(20 Marks)

OR

- 10 Using stiffness method determine the displacements at the joint 'B' of a  $P_{in}$  - jointed frame shown in Fig.Q10. Also calculate the forces in the members AB and BC due to given loading. The value of area of cross-section are indicated. Take  $E = 2 \times 10^5 \text{N/mm}^2$ .

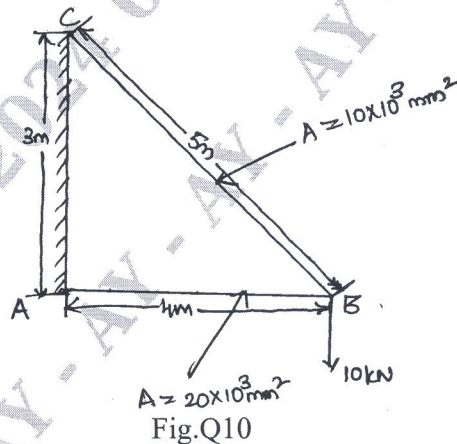


Fig.Q10

(20 Marks)

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