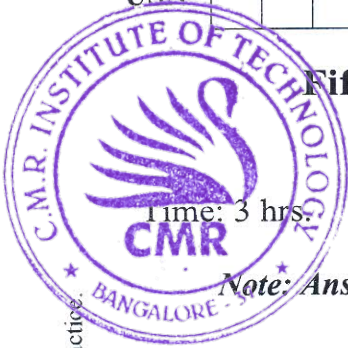


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Fifth Semester B.E. Degree Examination, Jan./Feb. 2023 Analysis of Indeterminate Structures

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 Analyze the continuous shown in Fig. Q1 by slope deflection method. Draw BMD, SFD and elastic curve. In the beam joint B sinks by 10 mm. Given $EI = 4000 \text{ KN.m}^2$

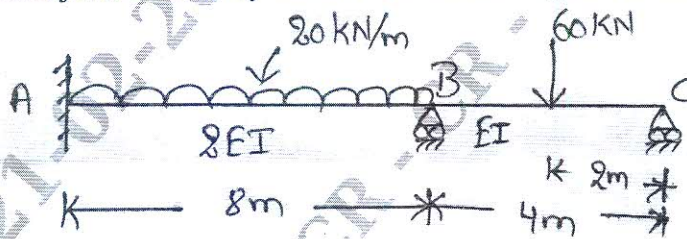


Fig. Q1

(20 Marks)

OR

- 2 Analyze the portal frame shown in Fig. Q2 by slope deflection method. Draw BMD and SFD.

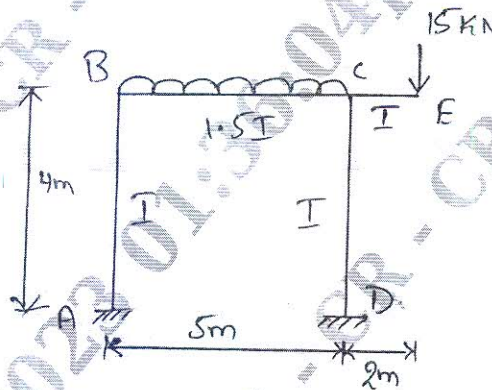


Fig. Q2

(20 Marks)

Module-2

- 3 Analyze the continuous beam shown in Fig. Q3 by moment distribution method, if support B yields by 9 mm. Take $EI = 1 \times 10^{12} \text{ N.mm}^2$ throughout. Draw BMD and SFD.

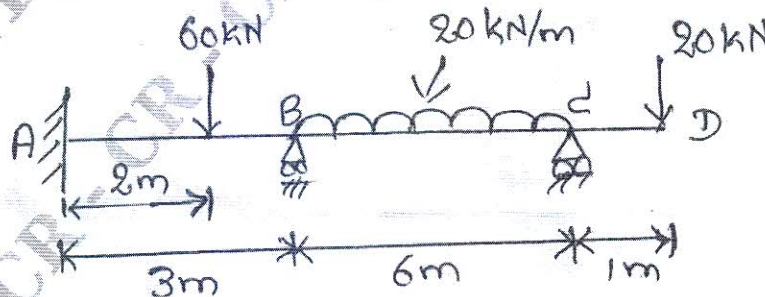


Fig. Q3

(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 Analyze the frame shown in Fig. Q4 by moment distribution method and draw bending moment diagram.

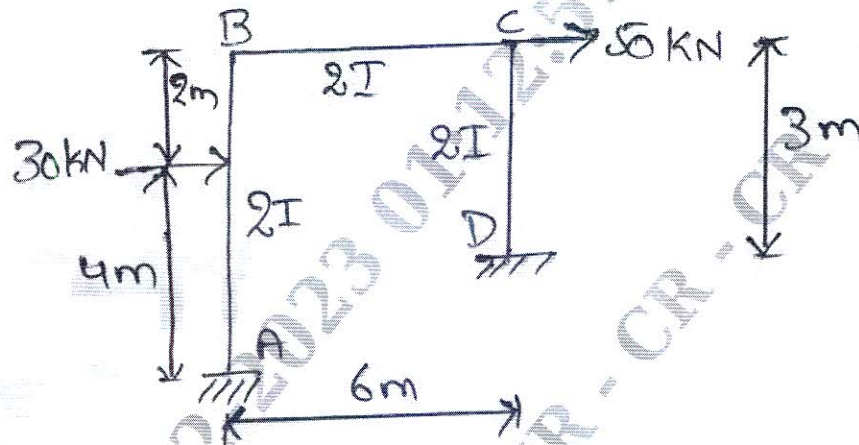


Fig. Q4

(20 Marks)

Module-3

- 5 Analyze the continuous beam shown in Fig. Q5 by Kani's method. Draw BMD and SFD.

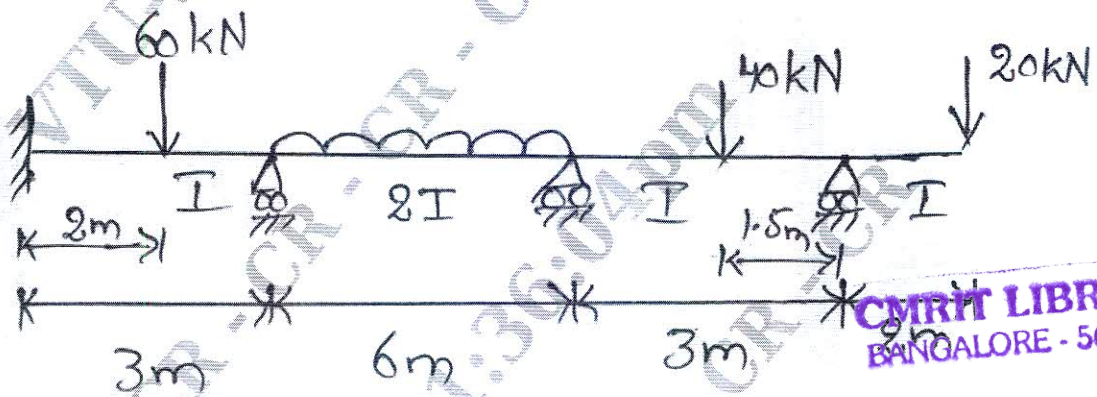


Fig. Q5

(20 Marks)

OR

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

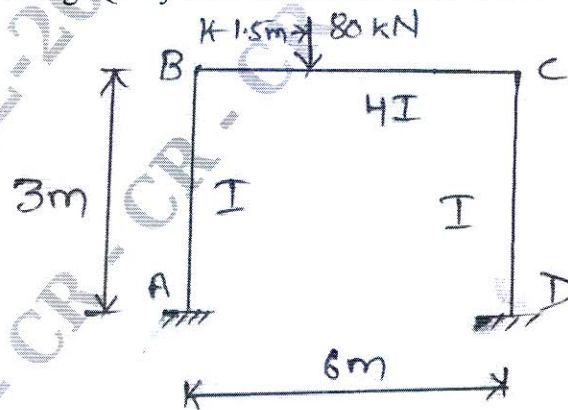


Fig. Q6

(20 Marks)

Module-4

- 7 Analyze the continuous beam shown in Fig. Q7 by flexibility matrix method. Draw BMD.

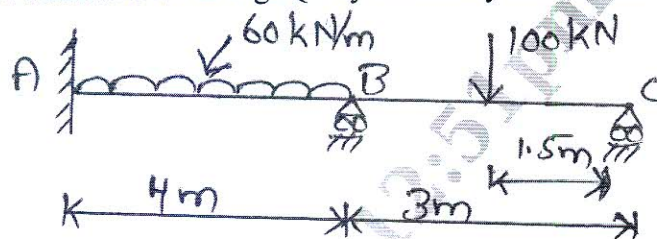


Fig. Q7

(20 Marks)

OR

- 8 Analyze the Pin-jointed truss shown in Fig. Q8. The cross sectional area of each member is 2000 mm^2 . Take $E = 200 \text{ kN/mm}^2$

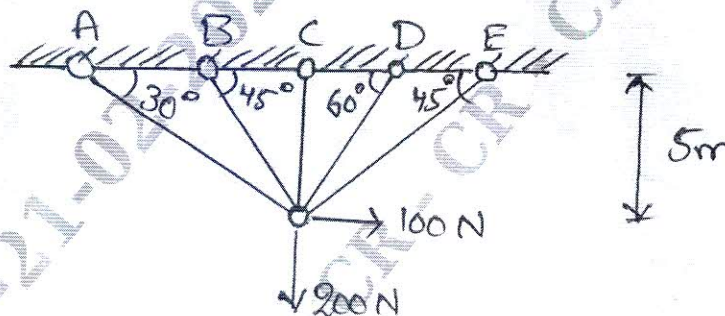


Fig. Q8

(20 Marks)

Module-5

- 9 Analyze the continuous beam shown in Fig. Q9 by stiffness matrix method. Draw BMD.

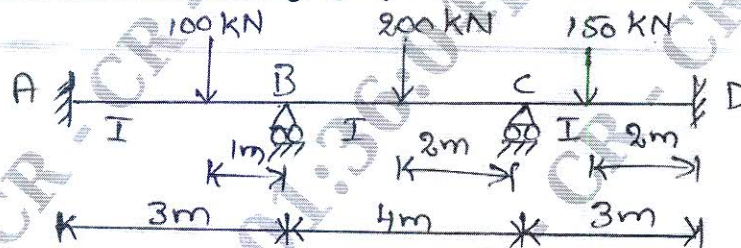


Fig. Q9

(20 Marks)

OR

- 10 Analyze the portal frame shown in Fig. Q10 by stiffness matrix method. Draw BMD.

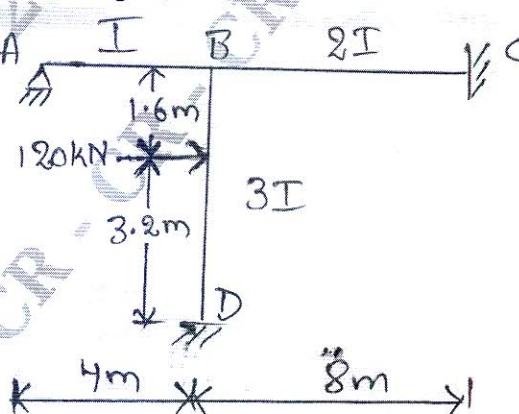


Fig. Q10

(20 Marks)