

CBCS SCHEME

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17CV52

Fifth Semester B.E. Degree Examination, June/July 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 Analyse the continuous beam shown in Fig.Q1 using slope deflection method and draw shear force and bending moment diagram.

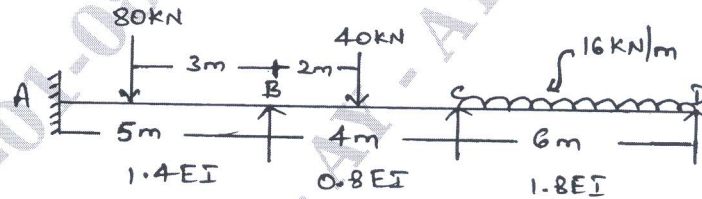


Fig.Q1

(20 Marks)

OR

- 2 Analyse the frame shown in Fig.Q2 using slope deflection method and draw bending moment diagram.

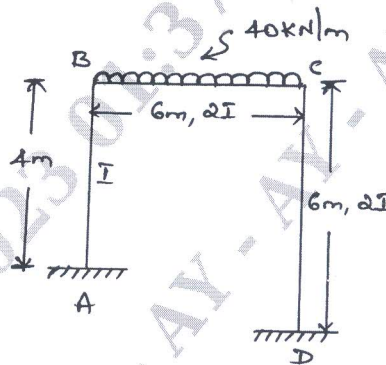


Fig.Q2

(20 Marks)

Module-2

- 3 A horizontal beam shown in Fig.Q3, analyse using moment distribution method. if the support 'A' sinks by 10mm and support 'B' sinks by 30mm and support 'C' sinks by 20mm. Determine the end moments in the beam. Given $I = 2.4 \times 10^6 \text{mm}^4$ and $E = 2 \times 10^5 \text{N/mm}^2$.

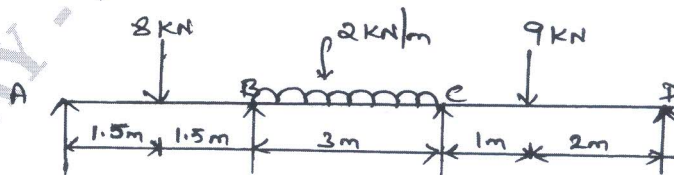


Fig.Q3

1 of 3

(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 by moment distribution method for the Fig.Q4 shown. Draw BMD.

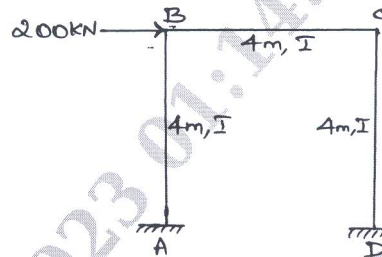


Fig.Q4

(20 Marks)

Module-3

- 5 Analyse the continuous beam shown in Fig.Q5 by Kani's method and draw B.M.D.

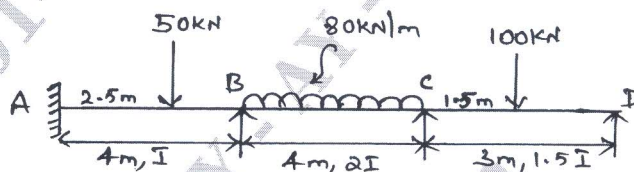


Fig.Q5

(20 Marks)

OR

- 6 Analyse the given frame by Kani's method and draw B.M.D for the given Fig.Q6.

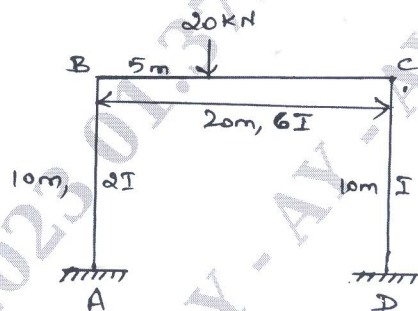


Fig.Q6

(20 Marks)

Module-4

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

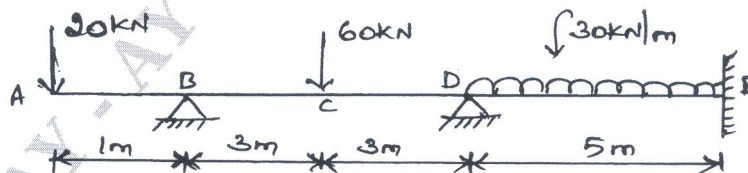


Fig.Q7

(20 Marks)

OR

- 8 Analyse the pin jointed plane truss shown in Fig.Q8 by using flexibility matrix method. Assume $\frac{L}{AE}$ for each member = 0.025mm/kN. Tabulate the member forces.

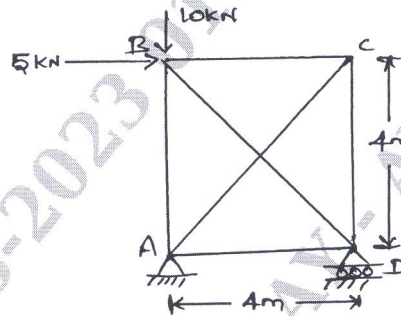


Fig. Q8

(20 Marks)

Module-5

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

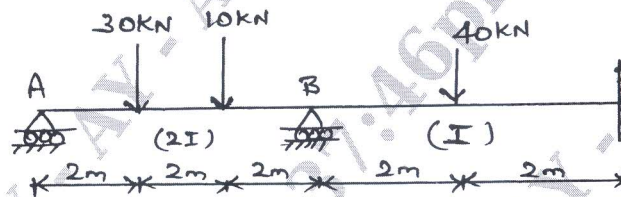


Fig.Q9

(20 Marks)

OR

- 10 Determine the displacement of the joint 'A' of the pin jointed frame as shown in Fig.Q10 by stiffness matrix method. Also determine the member forces for the given loading. Take area of the members as 'A' and modulus of elasticity as 'E'.

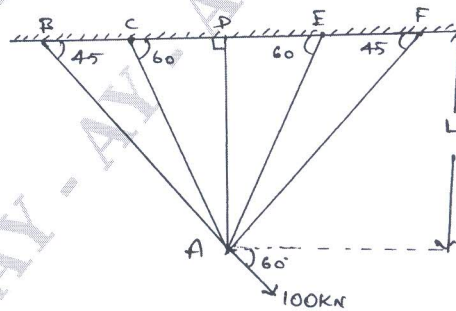


Fig.Q10

(20 Marks)
