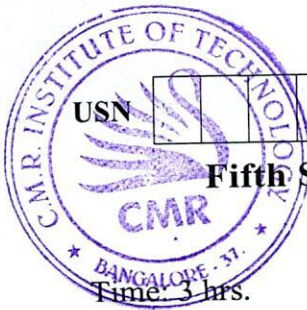




CBCS SCHEME

18CV52

Fifth Semester B.E. Degree Examination, Dec.2024/Jan.2025 Analysis of Indeterminate Structures

Max. Marks: 100

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

Module-1

- 1 Analyze the continuous beam shown in Fig.Q1 by slope deflection method. Draw BMD, SFD and elastic curve. (20 Marks)

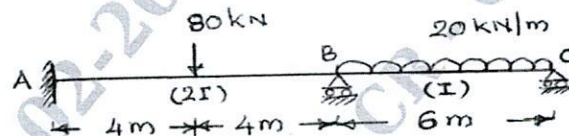


Fig. Q1.

OR

- 2 Analyze the portal frame shown in Fig.Q2 by slope deflection method. Draw BMD and elastic curve. (20 Marks)

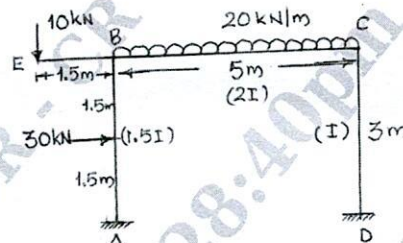


Fig. Q2

Module-2

- 3 Analyze the continuous beam ABCD loaded as shown in Fig.Q3 if settlement in support B and C are 5 mm and 10 mm respectively. Use moment distribution method. Take $EI = 2.7 \times 10^5 \text{ kN-m}^2$. Draw BMD. (20 Marks)

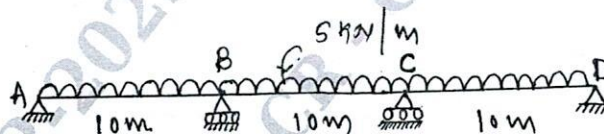


Fig. Q3

OR

- 4 Analyze the frame loaded as shown in Fig.Q4. Use moment distribution method. (20 Marks)

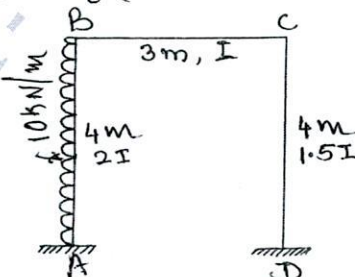
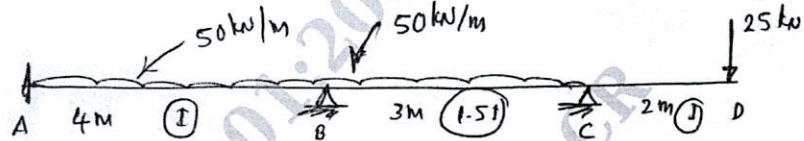


Fig. Q4

Module-3

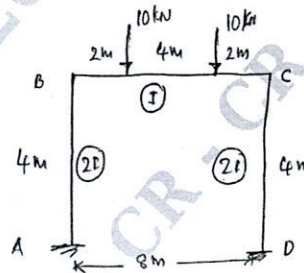
- 5 Analyze the continuous beam loaded shown in Fig.Q.5 by Kani's rotation method. Draw BMD. (20 Marks)

Fig. Q5

**OR**

- 6 Analyze the frame shown in Fig.Q.6 by Kani's method. Take the advantage of symmetry. (20 Marks)

Fig. Q6

**Module-4**

- 7 Analyze the continuous beam by using flexibility matrix method. Draw BMD, SFD and elastic curve. Refer Fig.Q7. (20 Marks)

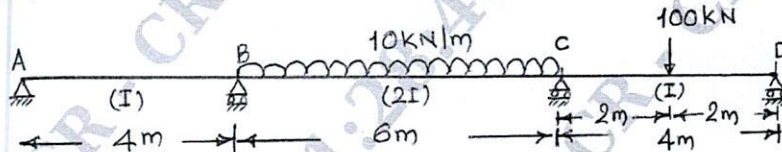
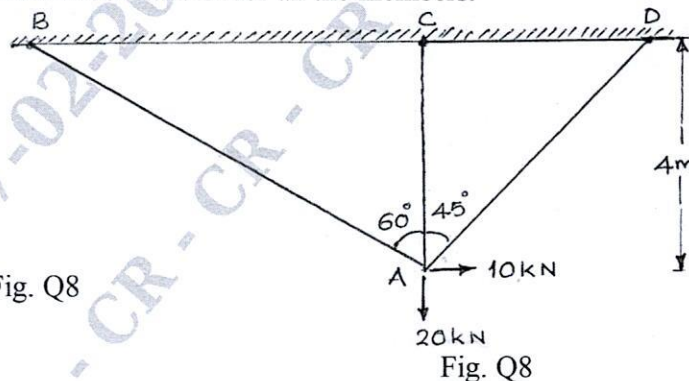


Fig. Q7

OR

- 8 Analyze the truss shown in Fig.Q8 by flexibility matrix method choosing force in the member AD as redundant. Assume constant EI for all the members. (20 Marks)

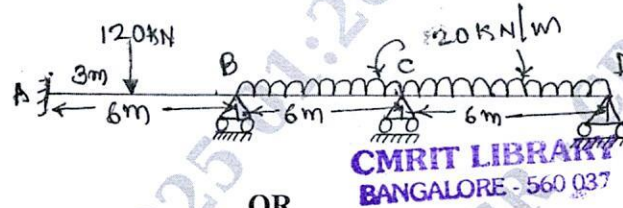
Fig. Q8



Module-5

- 9 Analyze the continuous beam shown in Fig.Q9 by stiffness matrix method. Take EI constant. (20 Marks)

Fig. Q9



OR

- 10 Analyze the pin-jointed truss shown in Fig.Q10 by stiffness matrix method. Take cross-sectional area for all members = 1000 mm^2 and $E = 200 \text{ kN/mm}^2$. (20 Marks)

Fig. Q10

