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17CV52



## Fifth Semester B.E. Degree Examination, July/August 2021 Analysis of Indeterminate Structures

Max. Marks: 100

**Note: Answer any FIVE full questions.**

### Module-1

- 1 a. Analyse the continuous beam shown in Fig. Q1 (a) by slope deflection method. Draw bending moment diagram. Take  $EI$  constant. (10 Marks)

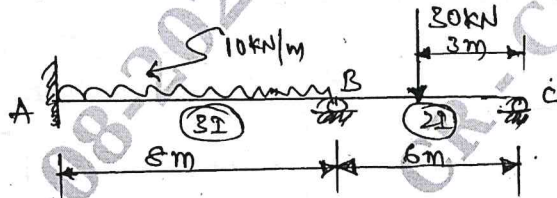


Fig. Q1 (a)

- b. Analyse the portal frame shown in Fig. Q1 (b) by slope deflection method. Draw bending moment diagram. (10 Marks)

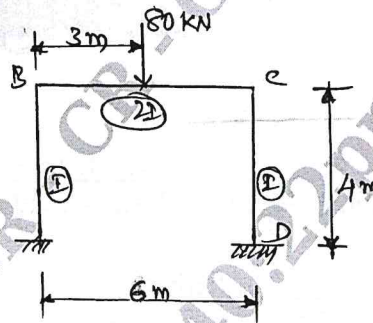


Fig. Q1 (b)

**OR**

- 2 a. Analyse the beam shown in Fig. Q2 (a) by slope deflection method. Draw bending moment and shear force diagram. Take  $EI$  constant. (08 Marks)

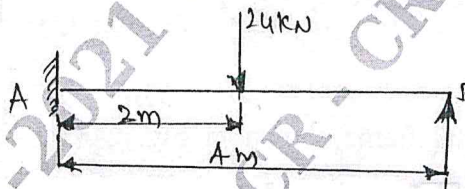


Fig. Q2 (a)

- b. Analyse the frame shown in the Fig. Q2 (b) by slope deflection method. Draw bending moment diagram. (12 Marks)

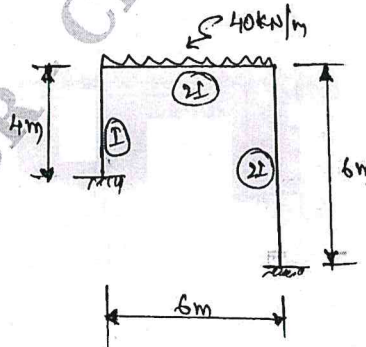


Fig. Q2 (b)

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.

**Module-2**

- 3 Analyse the beam shown in Fig.Q3 by moment distribution method. Draw BMD, SFD and elastic curve. (20 Marks)

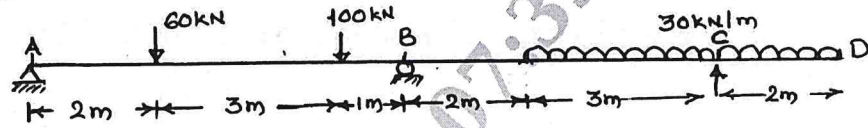


Fig. Q3

OR

- 4 Analyze the portal frame by moment distribution method. Draw bending moment diagram. Refer Fig. Q4. Take EI constant. (20 Marks)

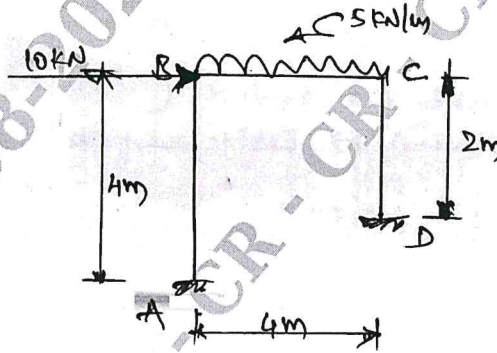


Fig. Q4

**Module-3**

- 5 Analyse the continuous beam by Kani's method. Refer Fig. Q5. Draw bending moment diagram. (20 Marks)

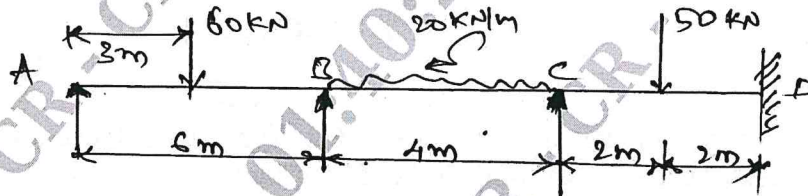


Fig. Q5

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OR

- 6 Analyse the portal frame shown in Fig. Q6 by Kani's method. Draw bending moment diagram. (20 Marks)

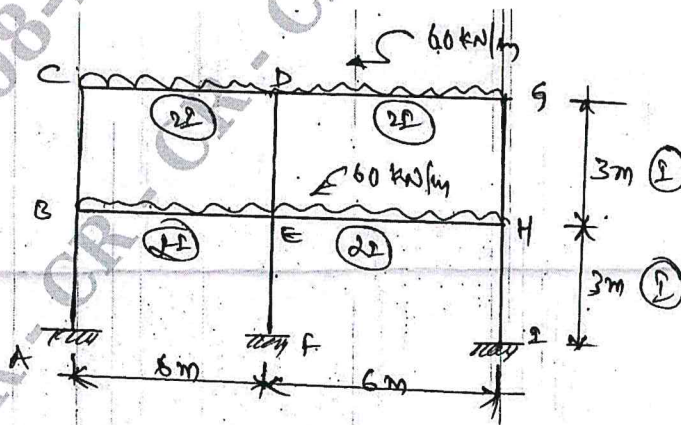


Fig. Q6

**Module-4**

- 7 Analyse the continuous beam shown in Fig. Q7 by flexibility method and draw bending moment diagram. Take EI constant. (20 Marks)

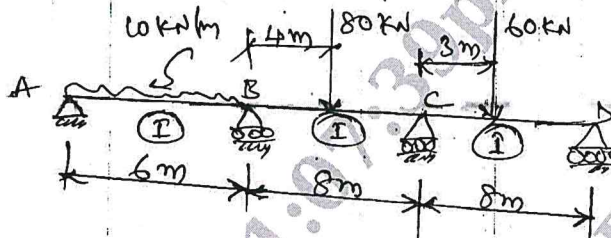


Fig. Q7

OR

- 8 Analyze the pin jointed truss shown in Fig. Q8 by flexibility matrix method and determine the forces in the members. Take force in the number OA is redundant. (20 Marks)

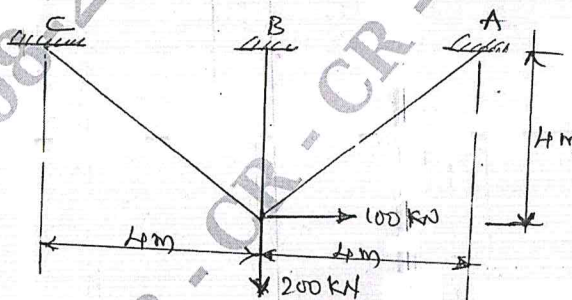


Fig. Q8

**Module-5**

- 9 Analyse the Portal frame shown in Fig. Q9 by stiffness method. Draw bending moment diagram. (20 Marks)

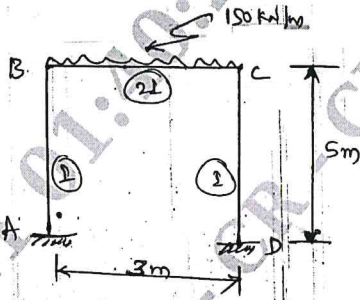


Fig. Q9

OR

- 10 Analyse the truss shown in Fig. Q10 by stiffness method and find the forces in the members. (20 Marks)

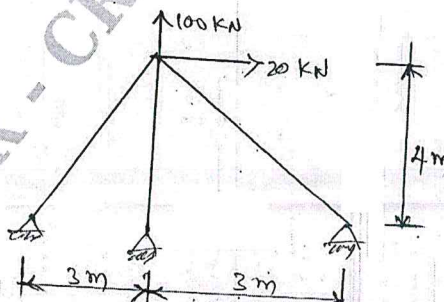


Fig. Q10

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