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18CV52

Fifth Semester B.E. Degree Examination, Jan./Feb. 2021
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 beam shown in Fig.Q1 by slope deflection method. Draw BMD, SFD and elastic curve.
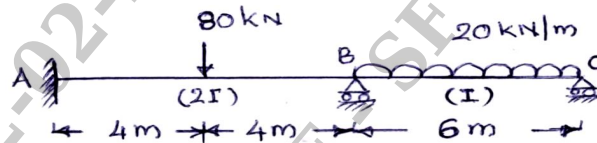

Fig.Q1

(20 Marks)

OR

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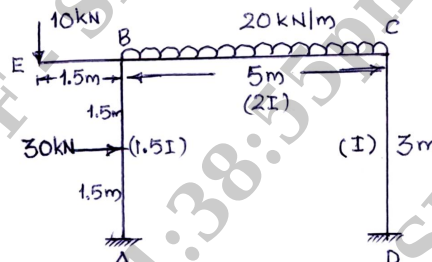

Fig.Q2

(20 Marks)

Module-2

3 Analyze the continuous beam shown in Fig.Q3 by using moment distribution method. Draw BMD SFD and elastic curve the support B sinks by 1 cm. Take EI = 500 kN-m^2.
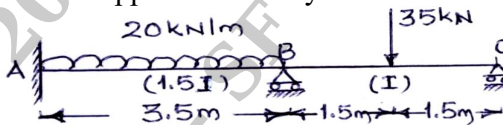

Fig.Q3

(20 Marks)

OR

4 Analyze the portal frame shown in Fig.Q4 by moment distribution method. Draw BMD, SFD and elastic curve.
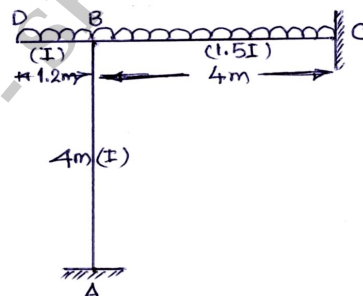

Fig.Q4

(20 Marks)

18CV52

Module-3

5 Analyze the continuous beam shown in Fig.Q5 by using Kani's method. The support C sinks by 20 mm. Take $E = 200$ kN/mm^2, $I = 170 \times 10^6$ mm^4. Draw BMD, SFD and EC.
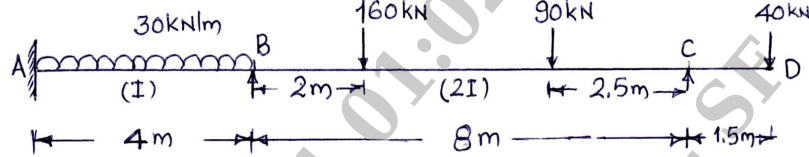

Fig.Q5 **(20 Marks)**

OR

6 Analyze the portal frame shown in Fig.Q6 by using Kani's method. Assume EI is constant throughout. Draw BMD and elastic curve.
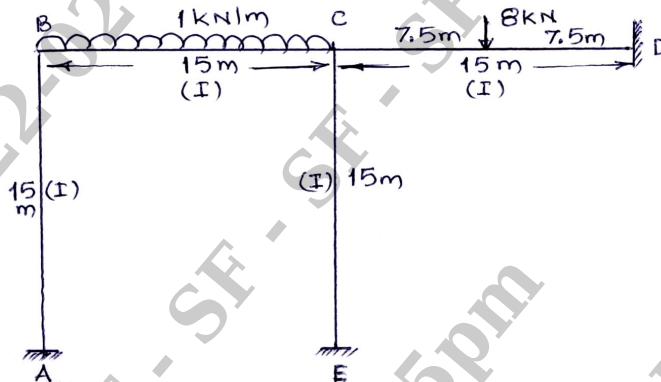

Fig.Q6 **(20 Marks)**

Module-4

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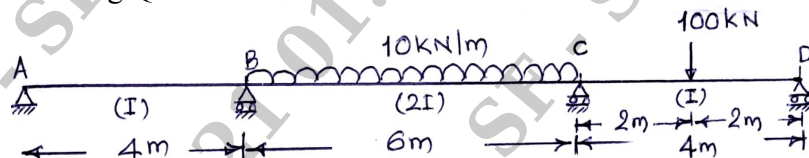

Fig.Q7 **(20 Marks)**

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.
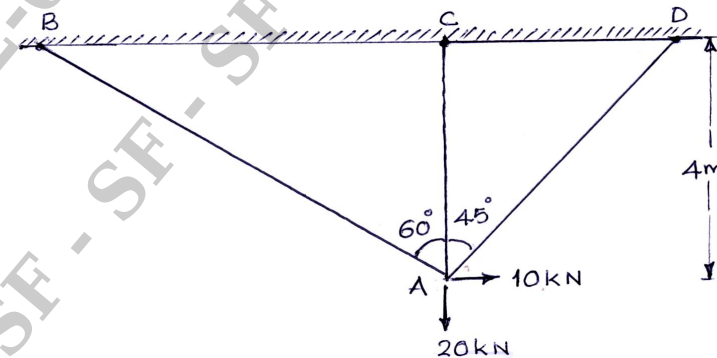

Fig.Q8 **(20 Marks)**

Module-5

9 Analyze the continuous beam shown in Fig.Q9 by using stiffness matrix method. Draw BMD, SFD and elastic curve.
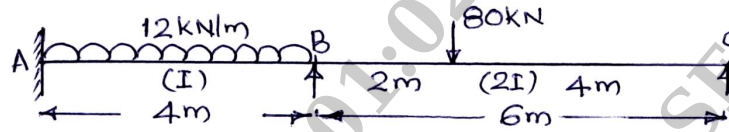

Fig.Q9 **(20 Marks)**

OR

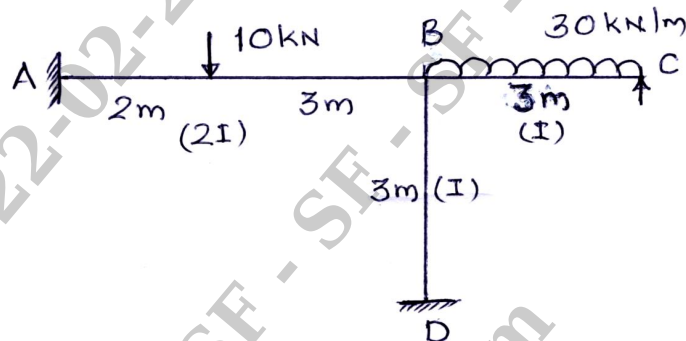**10** Analyze the portal frame shown in Fig.Q10 by stiffness matrix method. Draw BMD and elastic curve.

Fig.Q10 **(20 Marks)**

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