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17CV52

Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020 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 beam completely by slope deflection method relative to support A support B sinks by 1mm and support C rises by 0.5 mm. Take $EI = 30000 \text{ kN-m}^2$. Refer Fig.Q1. Draw BMD, SFD and Elastic curve.

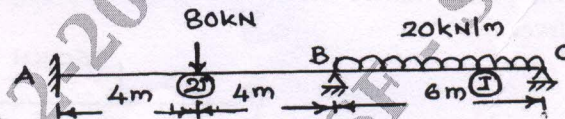


Fig.Q1

(20 Marks)

OR

- 2 Analyse the given frame by slope deflection method. Draw SFD, BMD and elastic curve. Refer Fig.Q2.

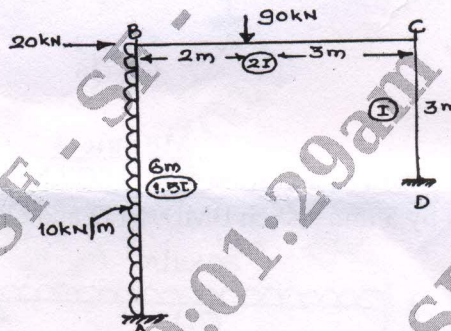


Fig.Q2

(20 Marks)

Module-2

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

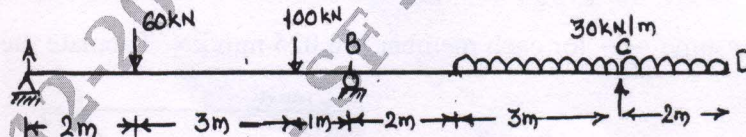


Fig.Q3

(20 Marks)

OR

- 4 Analyse the frame by moment distribution method. Draw BMD, SFD and elastic curve. Refer Fig.Q4.

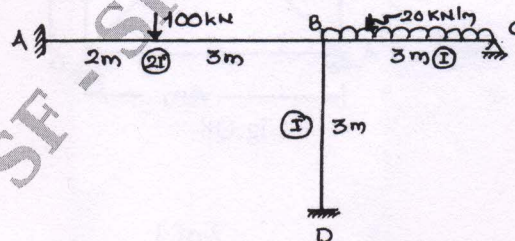


Fig.Q4

(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.

Module-3

- 5 Analyse the three span continuous beam shown in Fig.Q5 by using Kani's method. Draw BMD, SFD and elastic curve.

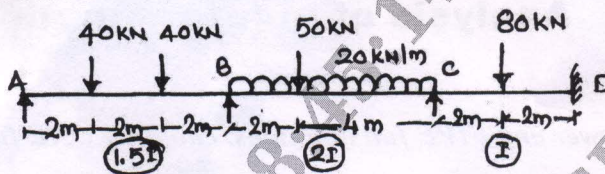


Fig.Q5



(20 Marks)

OR

- 6 Analyse the portal frames shown in Fig.Q6 by using Kani's method. Draw BMD, SFD and elastic curve.

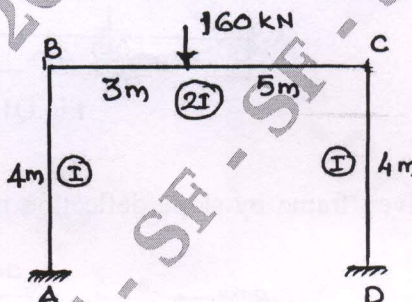


Fig.Q6

(20 Marks)

Module-4

- 7 Analyse the continuous beam shown in Fig.Q7 by flexibility method using system approach. Support B sinks by 5 mm sketch BMD, SFD and elastic curve. Take $EI = 15 \times 10^3 \text{ kN-m}^2$.

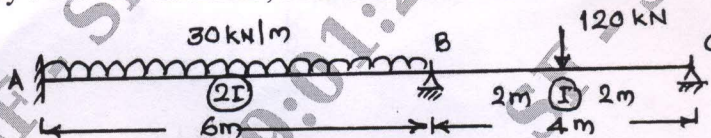


Fig.Q7

(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 = 0.025 mm/kN. Tabulate the member forces.

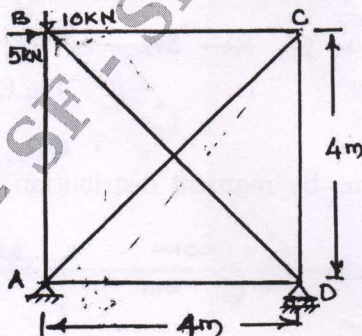


Fig.Q8

(20 Marks)

Module-5

- 9 Analyse the frame shown in Fig.Q9 by stiffness matrix method and draw BMD, SFD and Elastic curve. Assume EI is constant throughout.

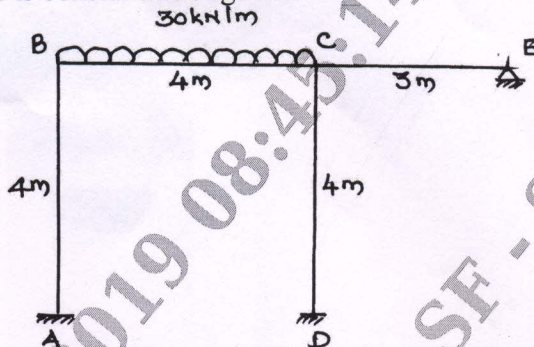


Fig.Q9

(20 Marks)

OR

- 10 Analyse the continuous beam shown in Fig.Q10 by using stiffness matrix method.

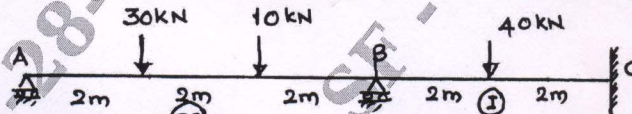


Fig.Q10

(20 Marks)
