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17CV52

Fifth Semester B.E. Degree Examination, Aug./Sept.2020 Analysis of Indeterminate Structures

Time: 3 hrs.

Max. Marks: 100

- Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. Assume missing data suitably.*

Module-1

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

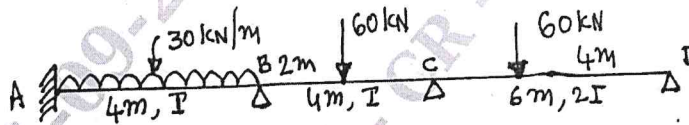


Fig.Q.1

OR

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

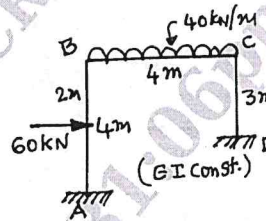


Fig.Q.2

Module-2

- 3 Analyze the continuous beam shown in Fig.Q.3. Using moment distribution method. Draw BMD, SFD and EC if support A yields by 0.002 radians in clockwise direction, support B sinks by 30mm and support 'C' sink by 20mm. Take $EI = 480 \text{ kN-m}^2$. (20 Marks)

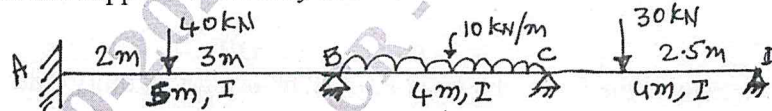


Fig.Q.3

OR

- 4 Analyze the frame shown in Fig.Q.4 by MD method and draw BMD and EC. (20 Marks)

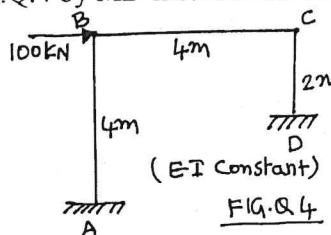


Fig.Q.4

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 Analyze the frame shown in Fig.Q.5 using Kani's method. Draw BMD and EC. (20 Marks)

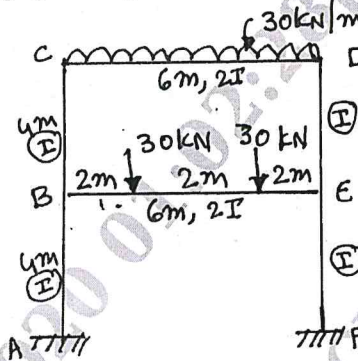


Fig.Q.5

OR

- 6 Analyze the frame shown in Fig.Q.6 by using Kani's method. Draw BMD. (20 Marks)

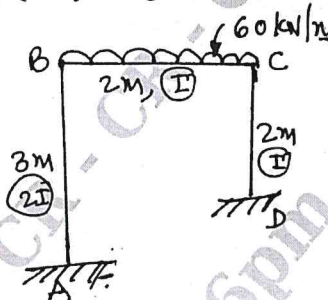


Fig.Q.6

Module-4

- 7 Analyze the continuous beam shown in Fig.Q.7 using flexibility matrix method. Draw BMD and SFD. (20 Marks)

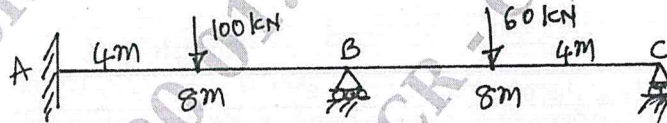


Fig.Q.7

OR

- 8 Analyze the frame shown in Fig.Q.8 by using flexibility matrix method. Draw BMD. (20 Marks)

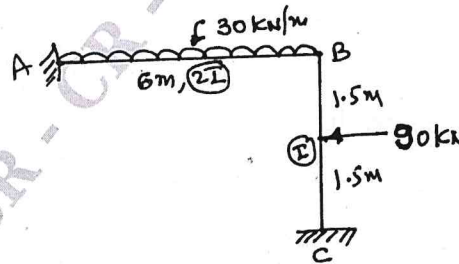


Fig.Q.8

Module-5

- 9 Analyze the truss shown in Fig.Q.9 using stiffness matrix method. It cross sectional areas of vertical member 300mm^2 and inclined members area 200mm^2 . Take $E = 2 \times 10^5 \text{N/mm}^2$. (20 Marks)

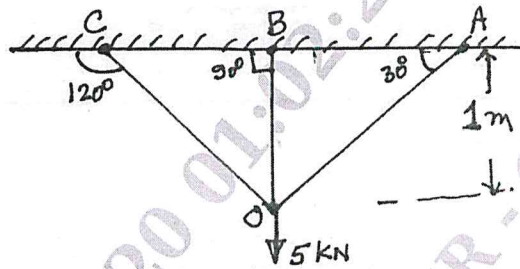
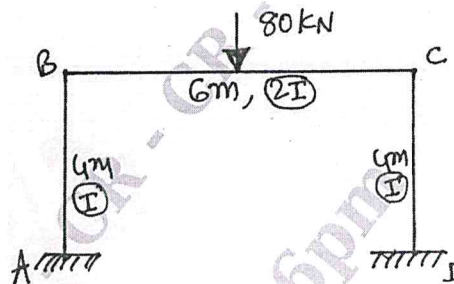


Fig.Q.9

OR

- 10 Analyze the Portal frame shown in Fig.Q.10 by using stiffness method. Draw BMD and EC. (20 Marks)



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Fig.Q.10
