



P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Fifth Semester, B.E. - Civil Engineering

Semester End Examination; Feb. - 2021

Analysis of Indeterminate Structures

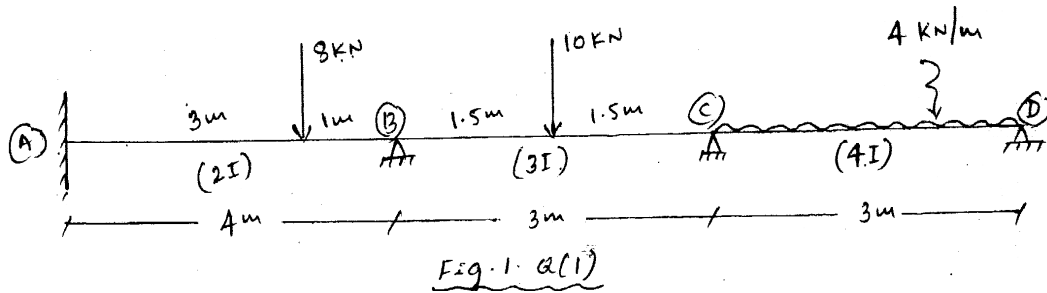
Time: 3 hrs

Max. Marks: 100

Note: Answer FIVE full questions, selecting ONE full question from each unit.

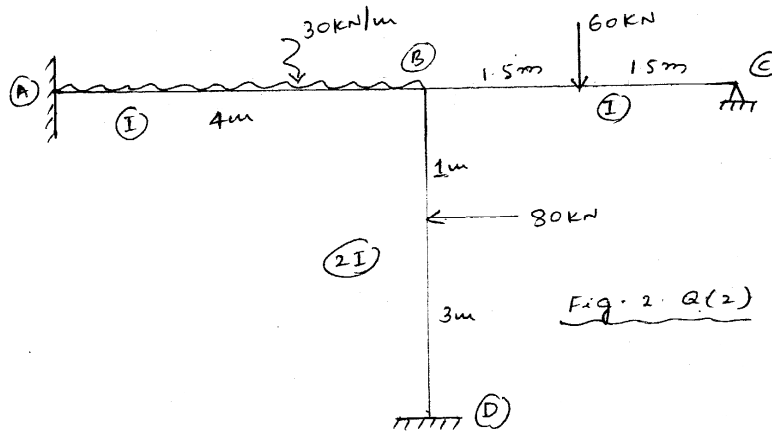
UNIT - I

- Analyze the continuous beam loaded as shown in Fig. 1Q(1) by slope deflection method. Sketch BMD, SFD and also sketch the elastic curve.



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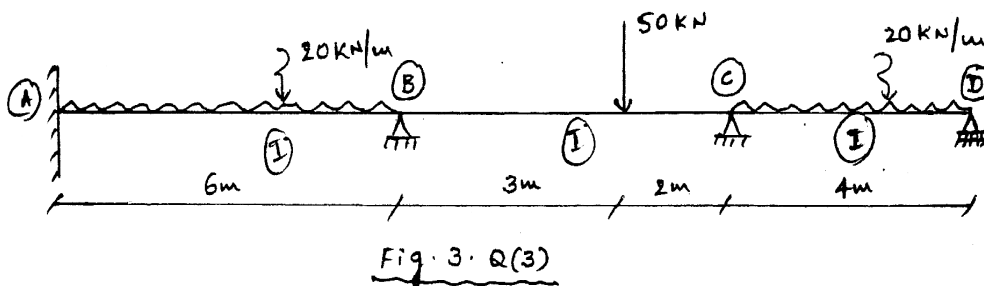
- Analyze the frame shown in Fig. 2 Q(2) by slope deflection method. Hence sketch BMD, SFD and elastic curve.



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UNIT - II

- Analyze the continuous beam shown in Fig. 3 Q(3) using moment distribution method. The support 'B' sinks by 10 mm. Draw BMD and elastic curve. Take $E = 2 \times 10^5 \text{ N/mm}^2$ and $I = 1.20 \times 10^{-4} \text{ m}^4$.



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4. Analyze the frame shown in Fig. 4 Q(4) by moment distribution method. Draw BMD and elastic curve.

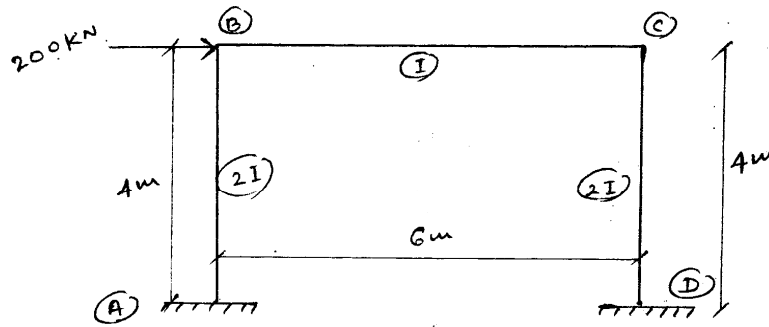


Fig. 4 Q(4)

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UNIT - III

5. Analyze the continuous beam shown in Fig. 5 Q(5) by Kani's method. Sketch BMD and SFD.

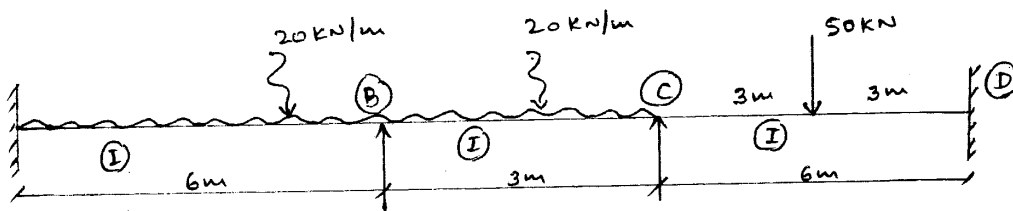


Fig. 5 Q(5)

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6. Analyze the symmetric frame shown in Fig. 6 Q(6) by Kani's method using the advantage of symmetry. Sketch BMD and elastic curve.

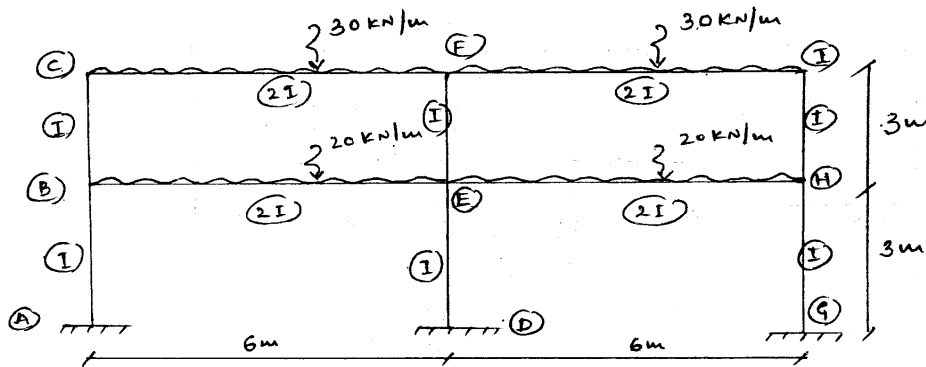


Fig. 6 Q(6)

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UNIT - IV

7. Analyze the continuous beam shown in Fig. 7 Q(7) by flexibility matrix method. Sketch BMD, SFD and elastic curve.

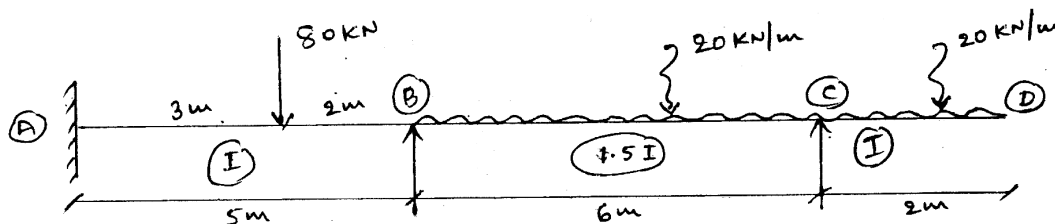
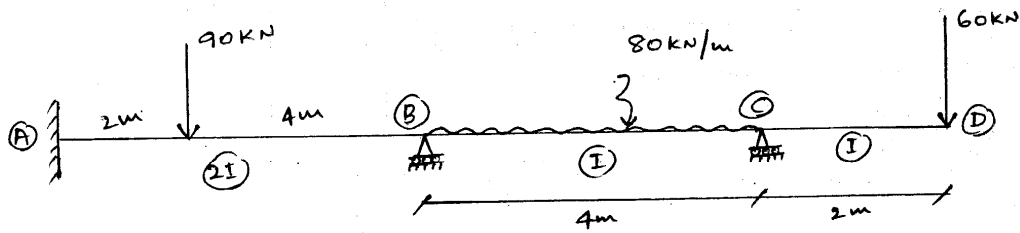


Fig. 7 Q(7)

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8. Analyze the continuous beam shown in Fig. 8 Q(8) by using stiffness matrix method. Draw BMD and SFD.

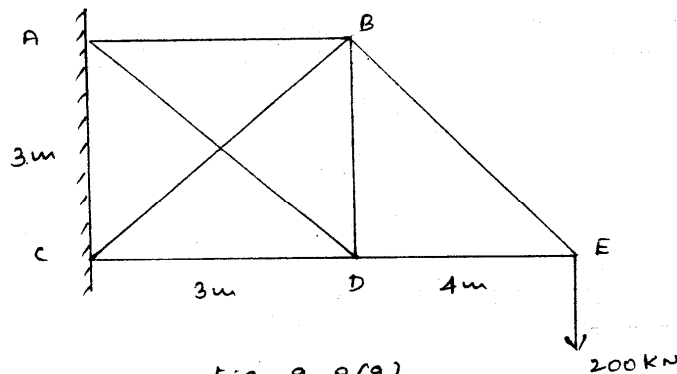


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Fig. 8. Q(8)

UNIT - V

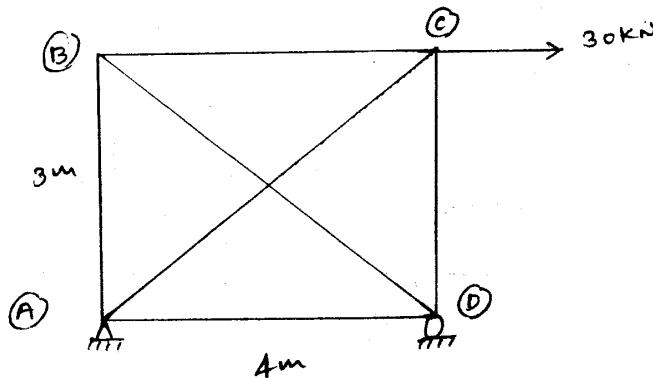
9. Analyze the cantilever truss shown in Fig. 9 Q(9) by strain energy method. Hence determine all the member forces. Take $AE = \text{constant}$.



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Fig. 9. Q(9)

10. Determine the forces in all the members of the truss shown in Fig. 10 Q(10) by strain energy method. Take; 'AE' is constant for all the members.



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Fig. 10. Q(10)
