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Question Paper Code: 31154

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Civil Engineering

01UCE504 – STRUCTURAL ANALYSIS - I

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

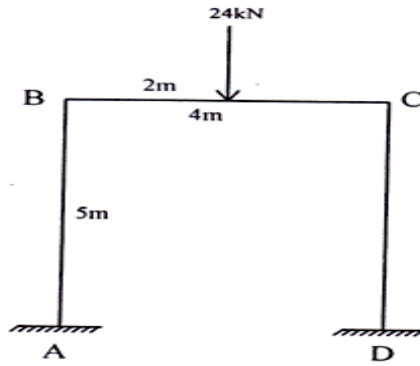
1. State principle of virtual work.
2. What is meant by lack of fit in a truss?
3. State the limitations of slope deflection method.
4. What is meant by sway?
5. Distinguish between sway and non sway type problem.
6. What is the difference between absolute and relative stiffness?
7. Describe the use of force method?
8. Define flexibility influence coefficient.
9. Which property of the structure determines the size of its stiffness matrix?
10. List the properties of the stiffness matrix.

PART - B (5 x 16 = 80 Marks)

11. (a) What is Williot's diagram? Describe its uses and importance in detail. (16)

Or

- (b) Determine the horizontal displacement and rotation at roller support in the frame shown in figure , where the Flexural rigidity EI is constant.

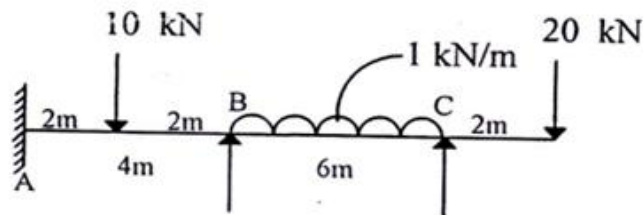


(16)

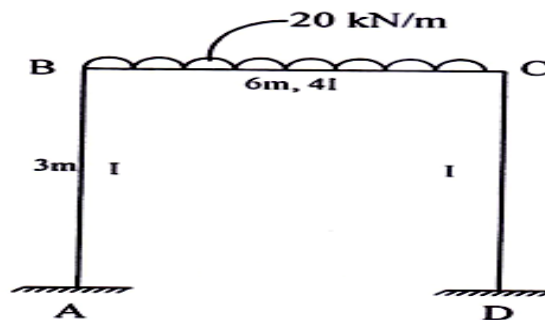
12. (a) A continuous beam ABC consists of spans AB and BC of length 5 m each. Both ends of the beam are fixed. The span AB carries a point load of 15 kN at its middle point. The span BC carries a point load of 25 kN at its middle point. Find the moments and reactions at the supports. Assume the beam is of uniform section. Use slope deflection method. (16)

Or

- (b) Analyse the continuous beam shown in figure by using slope deflection method and draw BMD. (16)

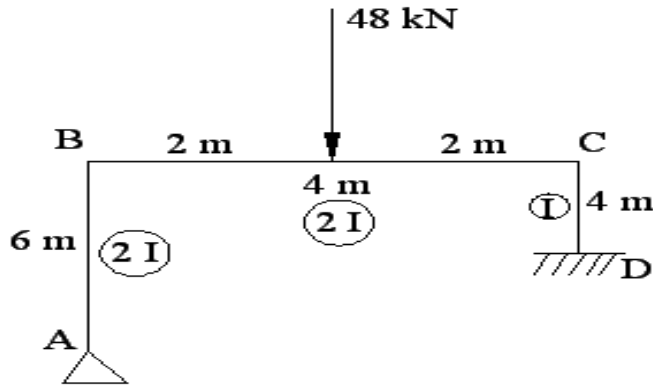


13. (a) Analyse the portal frame shown in figure by using moment distribution method and draw BMD. (16)

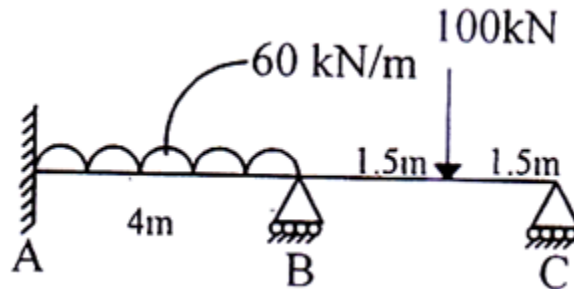


Or

- (b) Analyse the frame as shown in figure using moment distribution method and draw BMD. (16)

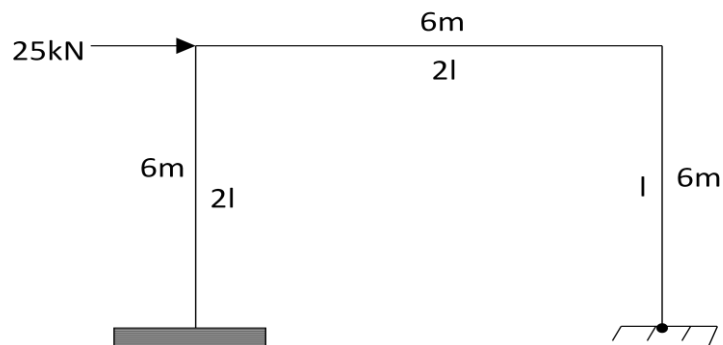


14. (a) Analyse the continuous beam shown in figure by using Flexibility matrix method and draw BMD. (16)

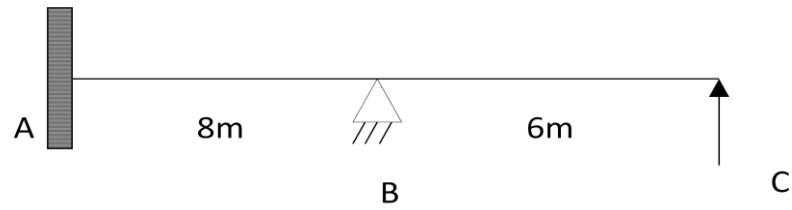


Or

- (b) Analyse the frame using flexibility matrix method. (16)



15. (a) Analyze the continuous beam AB , $EI=60000 \text{ kN-m}^2$. Use stiffness method. (16)



Or

- (b) Analyse the continuous beam shown in figure by using Stiffness matrix method and draw BMD. (16)

