

Code: R7310105

R7

B.Tech III Year I Semester (R07) Supplementary Examinations, May 2013

STRUCTURAL ANALYSIS - II

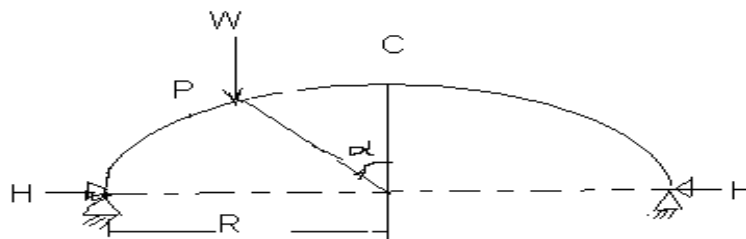
(Civil Engineering)

Time: 3 hours

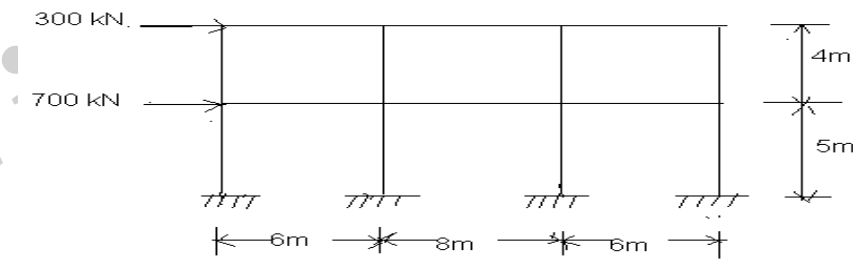
Max Marks: 80

Answer any FIVE questions
All questions carry equal marks

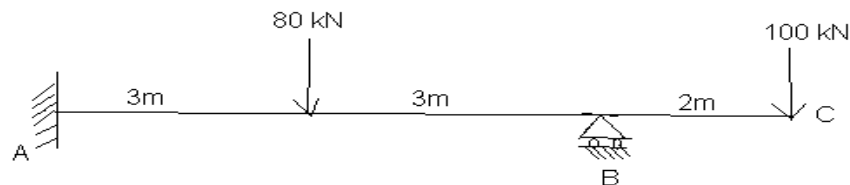
- 1 A three hinged circular arch of span 21 m has a central rise of 4 m. The arch is loaded with a point load of 8 kN at a horizontal distance of 6 m from the left support. Determine the horizontal thrust, reactions and bending moment under the load.
- 2 Determine the horizontal thrust in a two hinged semicircular arch when a load W acts at a point P as shown in the following diagram. Assume uniform flexural rigidity.



- 3 State the assumptions made in portal method of frame analysis and analyze the following frame by portal method of analysis. Draw the shear force diagram.



- 4 Analyze the beam as loaded in the following diagram by slope deflection method and draw the shear force and bending moment diagram. Take EI as constant.

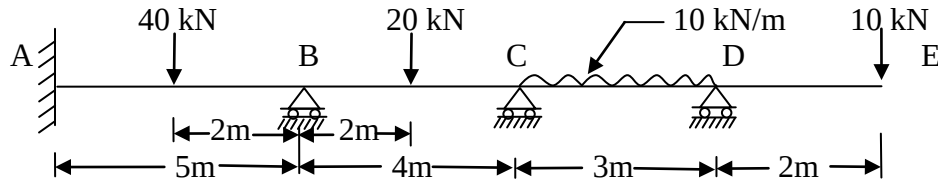


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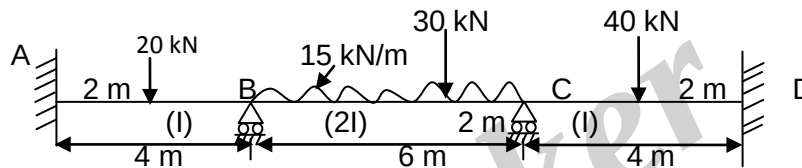
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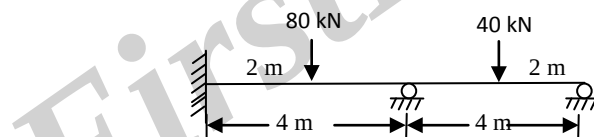
- 5 Analyze the continuous beam shown in figure by moment distribution method and draw bending moment diagram. Assume EI is constant throughout.



- 6 Analyze the continuous beam shown in figure by Kani's method and draw the BMD.



- 7 Analyze the continuous beam shown in figure, if the downward settlement of supports B and C are 10 mm and 5 mm respectively. Take $EI = 18 \times 10^{11} \text{ N-mm}^2$. Use flexibility method.



- 8 Analyze the continuous beam shown in figure by stiffness method and sketch the B.M. diagram.

