Code: 9A01504

R09

B.Tech III Year I Semester (R09) Regular & Supplementary Examinations December 2014

STRUCTURAL ANALYSIS – II

(Civil Engineering)

Time: 3 hours Max Marks: 70

Answer any FIVE questions

All questions carry equal marks

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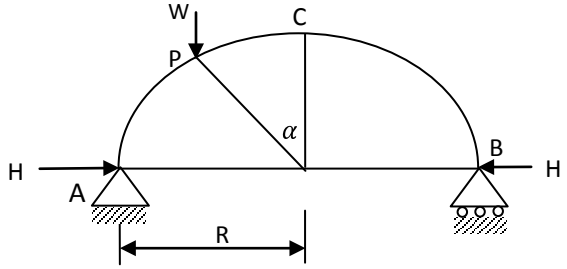
1 Determine the horizontal reaction in a semi-circular two hinged arch when a load 'W' acts at a point P as shown in figure below. Assume uniform flexural rigidity.

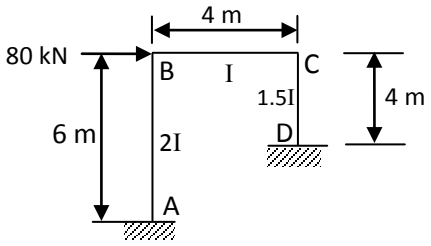


2 (a) Explain in detail about Castigliano's first theorem.

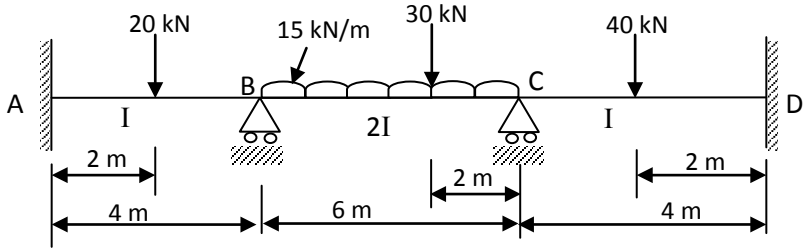
(b) Determine horizontal thrust developed in a semi circular arch of radius "R" subjected to a concentrated load "W" at the crown.

3 Analyze the portal frame ABCD having supports A and D as fixed. BC & CD portions having an udl of intensity 20 kN/m by using slop deflection method and draw bending moment diagram. Flexural rigidity (EI) is same for all members.

4 Analyze the portal frame shown in figure using Moment distribution method.

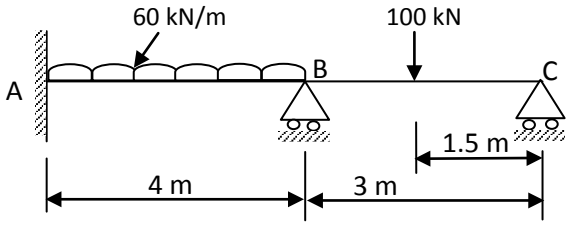


5 Analyze the continuous beam shown in the following figure by Kani's method.

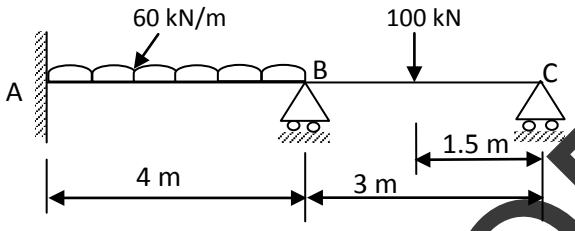


Contd. in page 2

6 Analyze the continuous beam shown in figure below by Flexibility matrix method.



7 Analyze the continuous beam shown in figure below by Displacement method. Take EI constant throughout.



8 (a) Define plastic hinge and plastic moment capacity.
(b) Determine the shape factor for the triangular section.

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