Code: 9A01709

R09

B.Tech IV Year I Semester (R09) Supplementary Examinations, May 2013
ADVANCED STRUCTURAL ANALYSIS
(Civil Engineering)
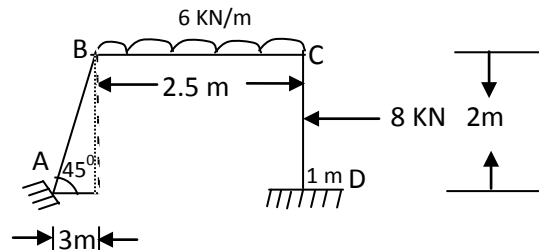
Time: 3 hours   Max Marks: 70

Answer any FIVE questions
All questions carry equal marks

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1. Analyze the inclined portal frame shown in figure and draw BMD, using moment distribution method. EI is constant.


2. Discuss the analysis of continuous beams using strain energy method with the help of an example in detail.

3. Draw the influence lines horizontal thrust and bending moment at P in the 3-hinged parabolic arch shown in figure. Determine the maximum values of these reactive forces due to a uniform rolling load of 5 kN/m, which may be placed over any part of the structure.
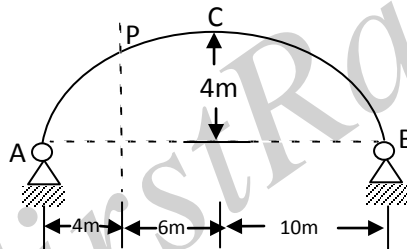
4. Analyze the portal frame shown in the figure using flexibility method if the settlements of support D to the right and down wards in kN-m units are 20/EI and 50/EI respectively.
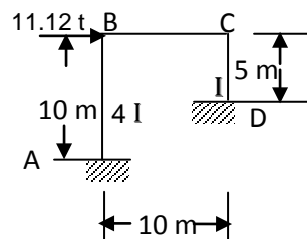
5. Determine the elements of the stiffness matrix for the portal frame with reference to the coordinates as shown in figure.
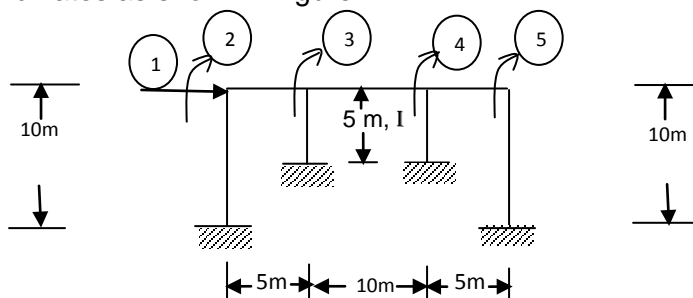
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6. Explain in detail the properties of a suspended cable.

7. Find the shape factor for:
   (a) Rectangular section.
   (b) Circular section.

8. Write short notes on:
   (a) Application of plastic analysis to steel portal frames.
   (b) Design sections of the portal frame using plastic analysis.

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