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R7

III B.Tech I Semester(R07) Supplementary Examinations, May 2011
STRUCTURAL ANALYSIS-II
(Civil Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks
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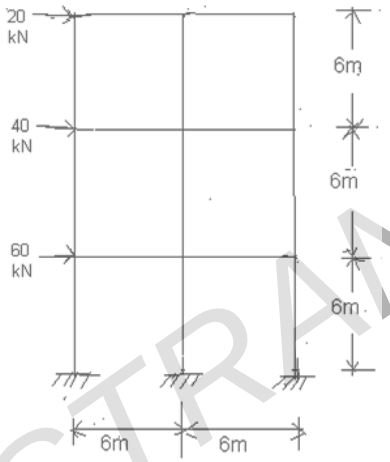
1. A three hinged circular arch consists of a portion AC of radius 3m and rise of the hinge C with respect to the left abutment is 3m. The right hands portion CB is of radius 8m and the horizontal distance BC is 7m. If a concentrated load of 10 kN acts at 6m from the left hand end, determine the reactions at hinges and maximum bending moment on the arch.
2. A two hinged parabolic arch of span L and central rise h carries a concentrated load W at the crown. Determine the expression for the horizontal thrust developed at springings.
3. State the assumptions made in portal method of frame analysis and analyze the following frame by portal method of analysis. Draw the bending moment diagram.



4. ABC is a continuous beam with EI constant throughout its length. The end supports A and C are fixed and the beam is continuous over the middle support B. Span BC is uniformly loaded with 10 kN/m length while a concentrated downward load of 100 kN at the mid span of AB. Calculate the moments by slope deflection method.
5. Analyse the beam ABCD shown in fig. 4 by moment distribution method and draw bending moment diagram.

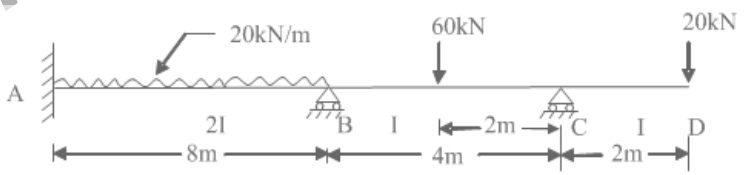


Fig. 4

6. (a) Explain Kani's method of solving a frame subjected to sway forces.
   (b) Evaluate the bending moment and shear force diagrams of a beam in figure 4 by the Kani's method.

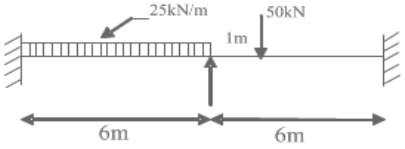


Fig. 4

7. (a) Distinguish between the flexibility and stiffness methods of analysis of structures.
   (b) Explain the substitute Frame method of analysis for a multistoried frame for obtaining the maximum bending moment in a particular beam or a column.

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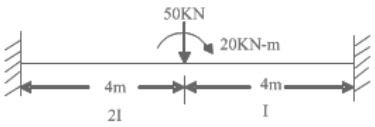
8. (a) Explain advantages of matrix methods of analysis.
   (b) Analysis the given fixed beam by stiffness method. Sketch the BMD.



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