Code: R7420108

R7

B.Tech IV Year II Semester (R07) Advanced Supplementary Examinations, June 2012

ADVANCED STRUCTURAL ANALYSIS

(Civil Engineering)

Time: 3 hours Max Marks: 80

Answer any FIVE questions
All questions carry equal marks
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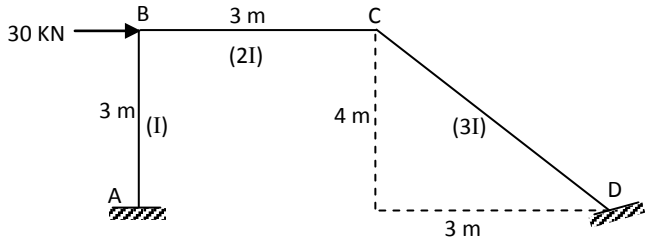
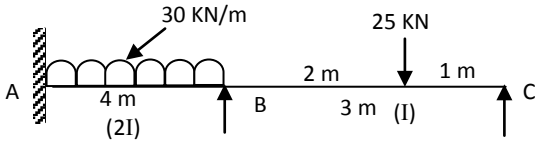
1 Analyze the given portal frame by moment distribution method.



2 Analyze the given continuous beam using strain energy method.

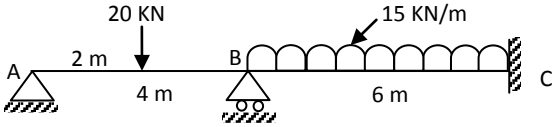


3 (a) Enumerate the uses of influence line diagrams.
(b) Draw ILD for a simply supported beam AB for various parameters such as Va, Vb, SF and BM.

4 Draw ILDs for a three hinged parabolic arch for various parameters given below when a unit load rolls over the span.
(a) V_a (b) V_b (c) SF at X (d) BM at X (e) ILD for the horizontal thrust, H.

5 A continuous beam ABC is fixed at A and is simply supported at C. Span AB = 10 m and BC = 10 m. Two concentrated loads of 24 KN and 10 KN act at the midpoints of both the spans. Analyze the given continuous beam by flexibility matrix method. EI is constant.

6 Analyze the given continuous beam using stiffness matrix method. EI is constant.



7 A symmetrical portal frame ABCD with both its ends A and D fixed carries a point load of 15 KN. AB=CD= 3 m and BC= 4 m. MI of BC is twice that of MI of vertical members AB and CD. Analyze the given frame by stiffness matrix method and sketch the BMD.

8 A simply supported beam of span 8 m carries a uniformly distributed load of 18 KN/m over the whole span. It also carries two point loads of 80 KN and 40 KN at 3 m and 6 m from the left support B. Design the beam by plastic theory.

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