B. Tech Civil 4th Semester F. Scheme

Examination, May–2015

STRUCTURALANALYSIS–II

Paper–CE–202–F

ne allowed : 3 hours] *[Maximum marks : 100*

ote : (1) Question No. 1 is compulsory. Attempt one question from each section.

(2) All questions carry equal marks.

(3) Assume missing data, if any, suitably.

Explain the following :

(a) Applications of anchor cables

(b) Statically determinate and indeterminate structures

(c) ILD for bonding movement

(d) Castigliano's 2nd theorem.

(e) Temperature stresses 5×4=20

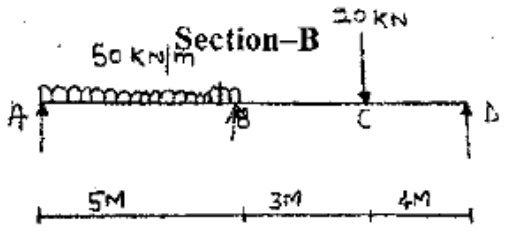
Section–A

(a) Draw influence line diagrams for Shear force and bending moment at a section 6 m from

left hand support of a simply supported beam 15 m long. Hence calculate maximum shear force and B. M. at the section due to a uniformly distributed load of 50 kN/m of length 5 m rolling over the span. 15

(b) Explain static and kinematic indeterminacies briefly. 5

3. Analyze the continuous beam as shown in figure 1 by moment distribution method and draw bending moment diagram. Assume EI constant.



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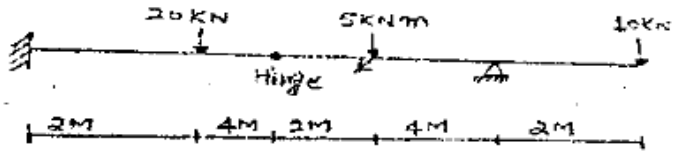
4. (a) A three hinged parabolic arc of span 25 m and rise 6 m carries a udl of 15 kN/m for a length of 10 m from right hinge towards centre. Find the horizontal thrust and reactions at the springs. 15

(b) What is the effect of temperature rise on three hinge arch ? 5

5. Draw SF and BM diagram for the beam as shown in figure.



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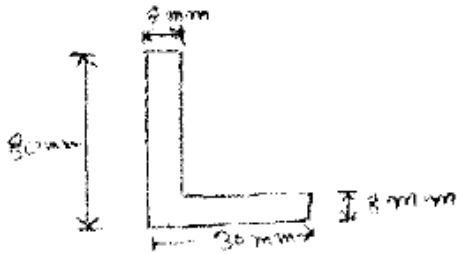
Section–C

6. A suspension cable is supported at two points 30 m apart. The right support is 3 m below the left support. The cable is loaded with uniformly distributed load of 20 kN/m throughout the span. The maximum dip in the cable from left support level is 5 m. Find maximum tension in the cable. http://www.HaryanaPapers.com 20

7. (a) Write a short note on unsymmetrical bending. 5

   (b) Determine the principal moment of inertia for an unequal angle section 80×30×8 mm as shown in figure.



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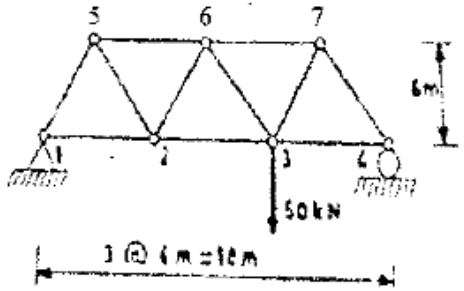
Section–D

8. (a) What is the difference between method of joints and method of sections ? 5

   (b) Analyze the truss as shown in figure by method of sections.



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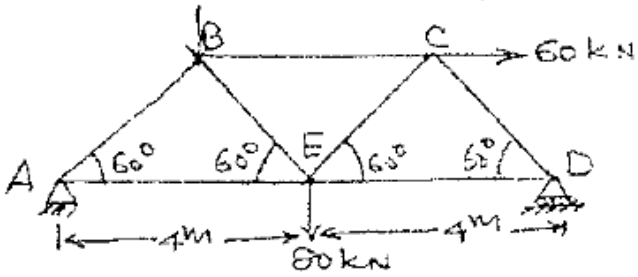
9. Analyze the truss as shown in figure by method of tension coefficients and determine the forces in the members AB, AE and BE.



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