B. Tech Degree VI Semester (Supplementary) Examination September 2010

CE 602 A/B ANALYSIS OF STRUCTURES II
(2006 Scheme)

Time : 3 Hours

Maximum Marks : 100

PART A
(Answer all questions)

(8 x 5 = 40)

I.   (a)   Compute the fixed end moment of a propped cantilever beam of length 5m with uniformly distributed load of 10kN/m throughout the span. Use column analogy method.

(b)   Briefly explain the theory of column analogy.

(c)   What are the assumptions made in portal method of analysis?

(d)   Write the procedure used in cantilever method of analysis.

(e)   Draw influence line diagram for B.M. at a particular section of a simply supported beam.

(f)   State and explain Muller Breslau's principle.

(g)   Write the expression to compute the support reaction and horizontal thrust at the supports of a two hinged parabolic arch of span 'ℓ' and rise 'h' subjected to an udl w/m run for the whole span.

(h)   Derive the expression to find the length of a cable profile when the supports are at the same level.
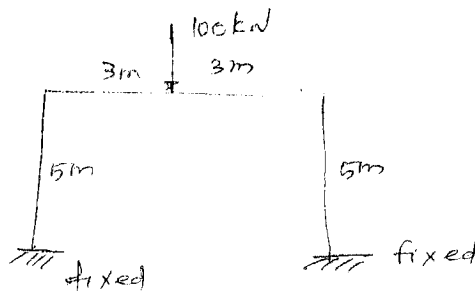
PART B

(4 x 15 = 60)

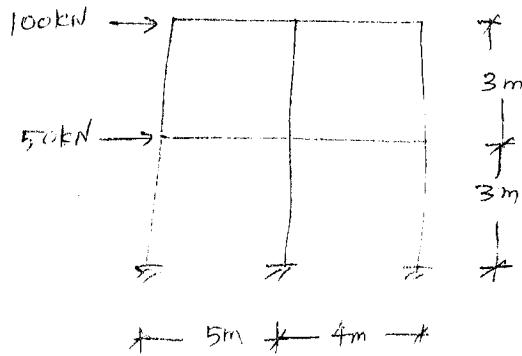II.   Draw SFD and BMD. Apply column analogy method.

(EI = Constant through out)
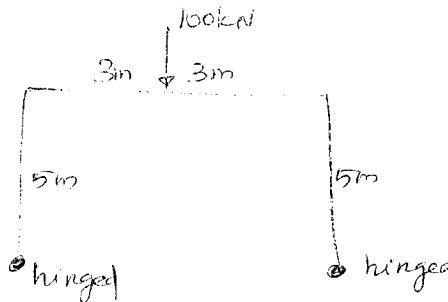
OR

III.   Draw SFD and BMD using column analogy method.

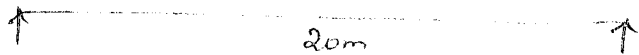(EI = Constant through out)
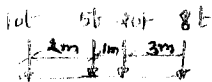
IV.   Analyse by portal method.
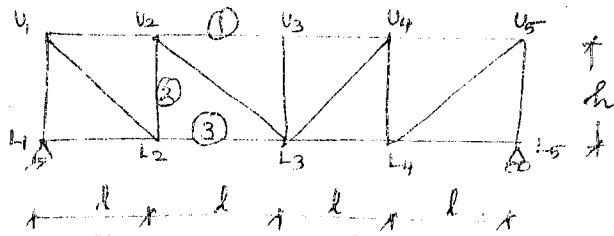

OR

V.   Analyse the frame shown in question IV by cantilever method.

VI.   A set of wheel loads shown below is moving from left end support to the right end support of a simply supported beam. Compute the absolute maximum bending moment and its location.
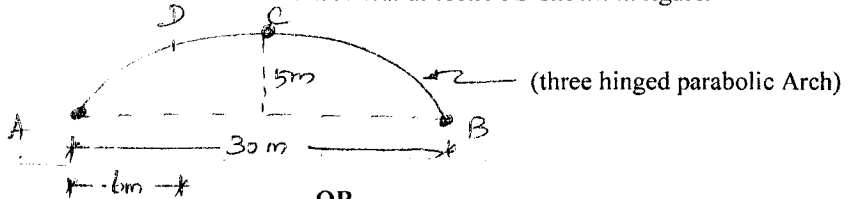

OR

VII.   Draw ILD for the members (1), (2) and (3) marked on the truss, when a unit load is moving from left end to right end of the truss.

VIII.   Draw ILD for normal thrust and radial shear at section D shown in figure.

(three hinged parabolic Arch)

OR

IX.   A cable having a span of 100m and a dip of 10m is subjected to an udl of 30 kN/m of the horizontal span.

          Compute the   (i)   tension in the cable
                          (ii)   length of the cable profile
                          (iii)   change in tension, when it is subjected to a rise of temperature 25^0C.

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