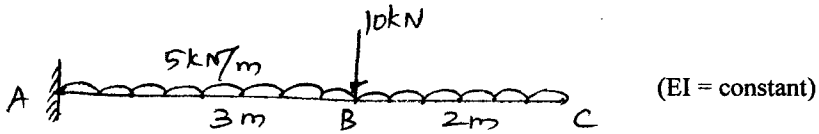# B.Tech Degree IV Semester Examination April 2011

CE 403 A/B ANALYSIS OF STRUCTURES-I
(2002 Scheme)

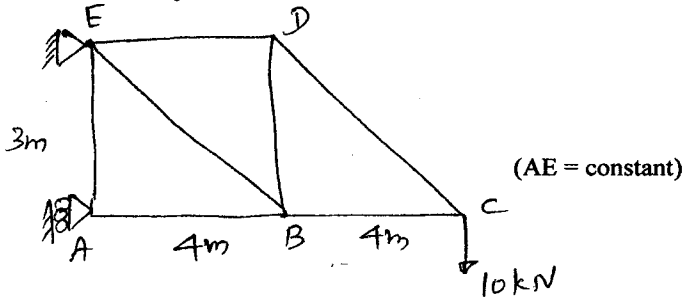Time : 3 Hours   Maximum Marks : 100

I.   (a)   State Castigliano's theorem.   (5)

    (b)   Using Castigliano's theorem, compute the deflection at the free end C of the cantilever beam shown in figure.   (15)

OR

II.   Using unit load method, compute the deflection at C of the truss shown in figure.   (20)

III.   A set of wheel loads is moving from left to right over a beam AB of span 20 m. Compute the maximum shear force at section C which is at 5 m from the left end A of the beam.   (20)
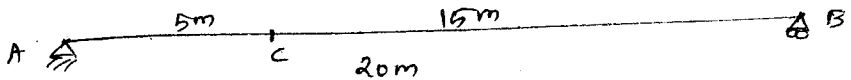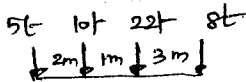
OR

IV.   For the figure above shown in Question No. III, compute the maximum B.M at section C which is at 8 m from the left end A of the beam.   (20)
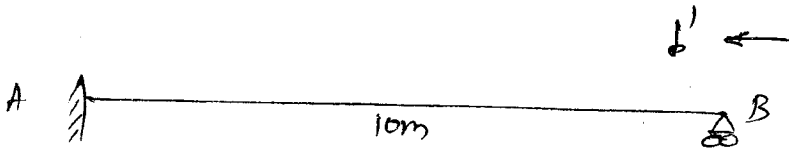
V.   Compute the absolute max B.M for the beam shown in figure, when a set of moving loads is moving from left end to right end of the beam.   (20)
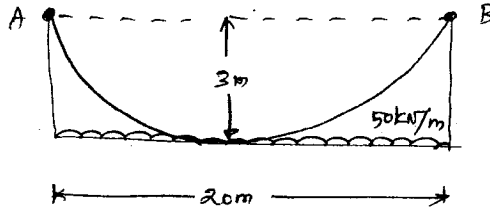

OR
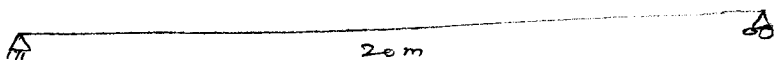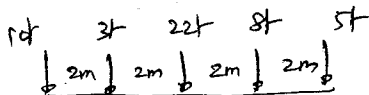
VI.   Draw influence line diagram for the support reaction R_B for the beam shown in figure, when a unit load is moving from A to B.   (20)
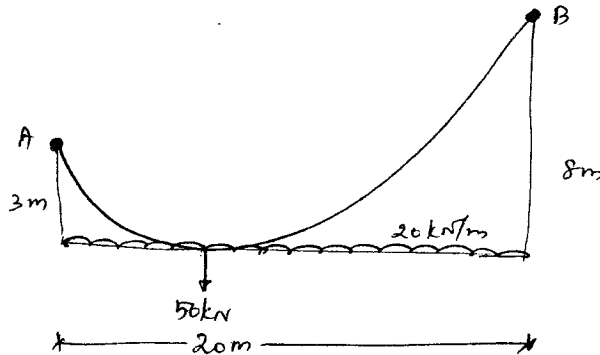

VII.   Compute the maximum and minimum tension in the cable shown in figure. Also compute the total length of the cable.   (20)
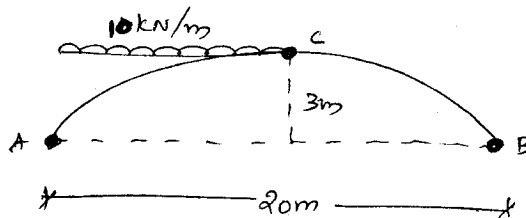

OR

VIII.   Compute the maximum and minimum tension in the cable shown in figure.   (20)

IX.   Draw bending moment diagram for the three hinged parabolic arch shown in figure.   (20)

OR

X.   Draw bending moment diagram for two hinged parabolic arch shown in figure.   (20)

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