(DCE 411)

B.Tech DEGREE EXAMINATION, MAY - 2015

(Examination at the End of Final Year)

CIVIL ENGINEERING

Paper - I : Advanced Structural Analysis - II

Time : 3 Hours   **Maximum Marks : 75**

Answer question No.1 compulsory   *(15)*

Answer ONE question from each unit   *(4 × 15 = 60)*

1)   a)   What are the forces developed at a section in a curved beam?

     b)   Define Torsion factor.

     c)   Write the applications to continuous beams.

     d)   Define rigid jointed plane.

     e)   What are the disadvantages of matrix methods?

     f)   What are the different approaches to matrix methods?

     g)   Define kinematic Indeterminacy.

     h)   Write any two differences between stress and strain.

     i)   Define stiffness and flexibility.

     j)   What is a continuous beam?

     k)   Define fully plastic moment.

     l)   Define shape factor.

     m)   Difference between a frame & a truss.

n) Define matrix.

o) Define ultimate load.

UNIT – I

2) a) Derive an expression for semicircular beam loaded uniformly and supported on symmetrically placed columns. **[8]**

b) Write the statement of Muller-Breslu principle? **[7]**

OR

3) Compute the ordinates of influence lines for reaction R_A for beam shown in fig. at 1m interval & draw the influence line diagram. Moment of inertia is constant through out. **[15]**
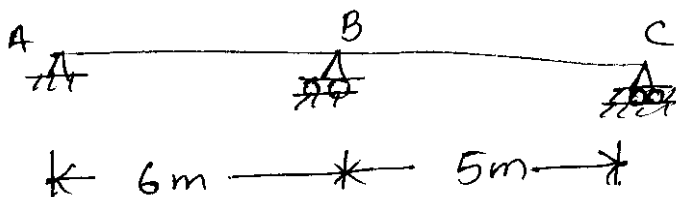
UNIT - II

4) a) Define shape factor? Derive shape factors for rectangular section. **[7]**

b) State & explain upper and lower bound theorems. **[8]**

OR

5) a) Derive Moment – Curvature relationships for flexural members. **[8]**

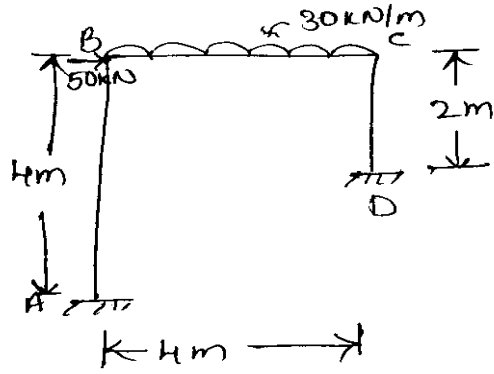b) What do you mean by collapse load factor? Explain with an example. **[7]**

UNIT – III

6) Analyse the continuous beam by flexibility matrix method. Draw SFD & BMD. Assuming constant EI throughout the beam and Draw elastic curve. **[15]**
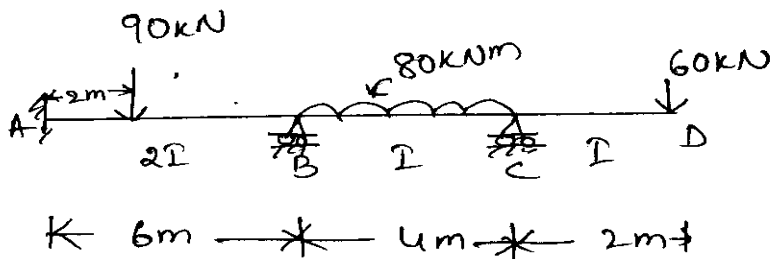

OR

7) Analyse the portal frame ABCD by flexibility matrix method. EI is constant throughout. **[15]**

UNIT - IV

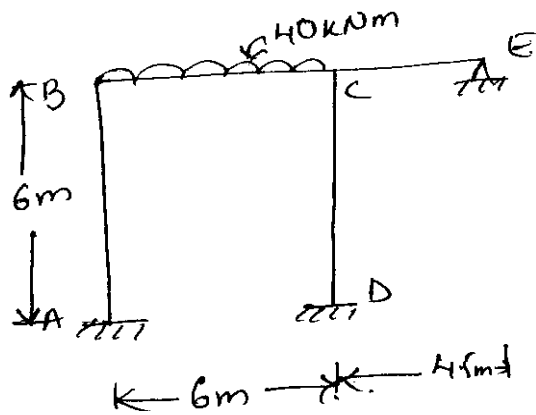*8)* Analyse the beam shown by stiffness matrix method. **[15]**

OR

9) Using stiffness matrix method, analyse the frame shown. Take EI constant throughout. **[15]**

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