

Total No. of Questions :8]

SEAT No. :

P1682

[Total No. of Pages :4

[5058]-302

T.E. (Civil)

STRUCTURAL ANALYSIS - II

(2012 Course) (Semester - I)

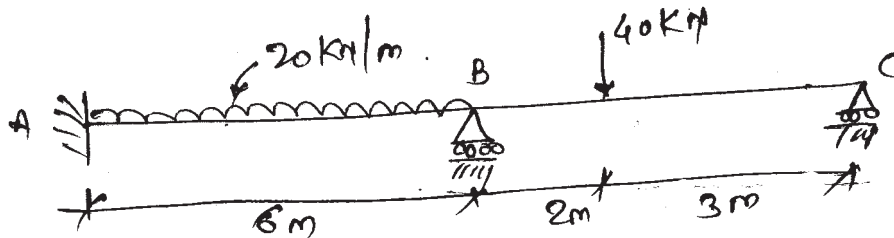
Time : 2½ Hours]

[Max. Marks :70

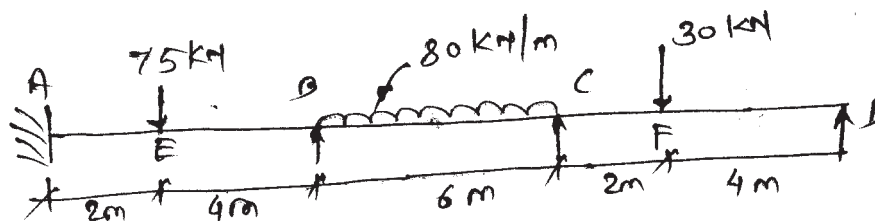
Instructions to the candidates:

- 1) Answer questions Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Figures to the right side indicate full marks.
- 3) If necessary, assume suitable data & indicate clearly.
- 4) Use of electronic pocket calculator is allowed.

Q1) a) Analyse the beam by slope deflection method. Draw BMD & SFD. Take  $EI = 3900 \text{ kN-m}^2$ . The support 'B' sinks by 30mm. [10]



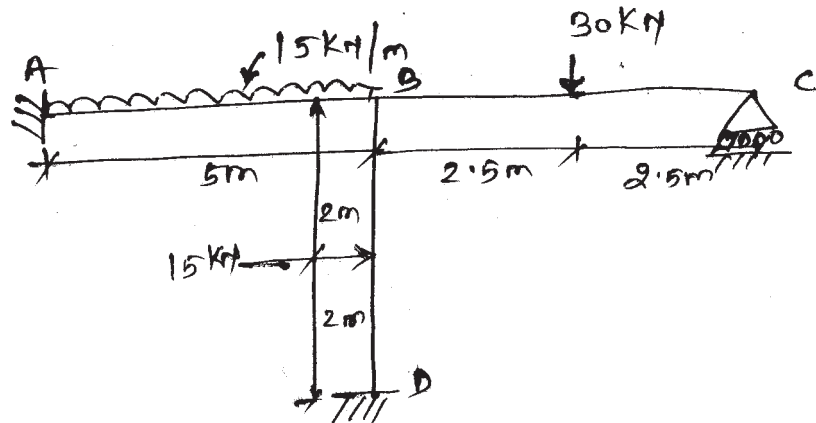
b) Analyse the continuous beam shown in figure using flexibility method & draw the bending moment diagramme. [10]



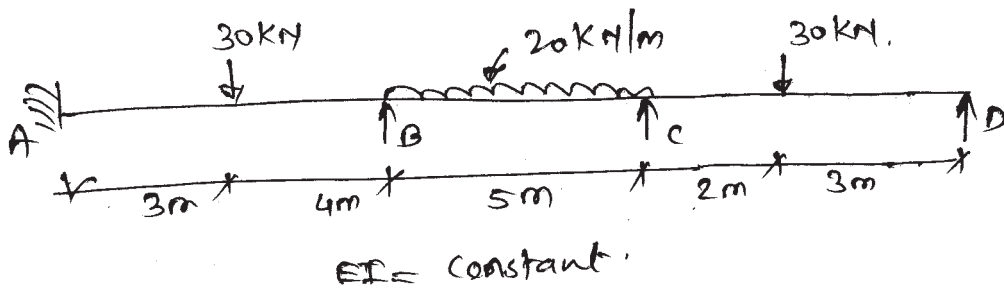
OR

P.T.O.

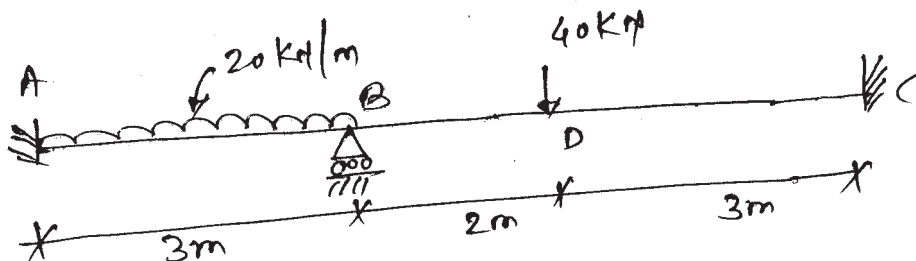
- Q2) a) Analyse the frame as shown in figure. EI is constant. Use slope deflection method. [10]



- b) Analyse the continuous beam shown in figure by moment distribution method. Draw BMD & SFD. [10]

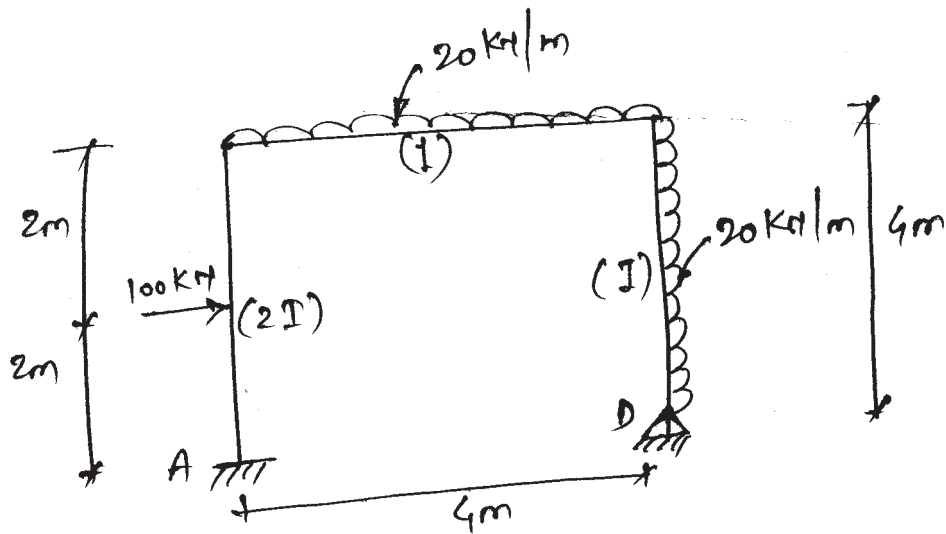


- Q3) Analyse the beam shown by stiffness matrix method. Draw BMD & elastic curve. EI = constant. [16]

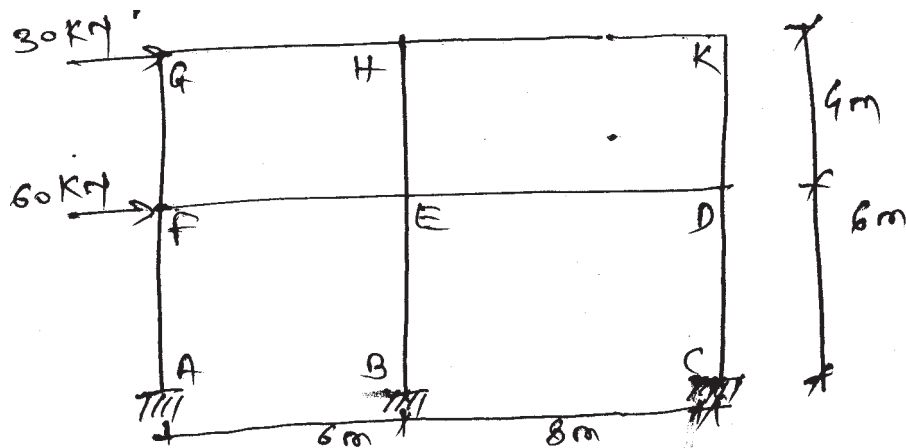


OR

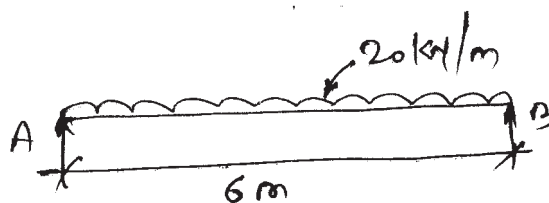
Q4) Analyse the frame by stiffness matrix method & sketch BMD. [16]



Q5) a) Determine the approximate values of moment, shear & axial forces in member of the frame loaded & supported as shown in figure using cantilever method of analysis. [12]



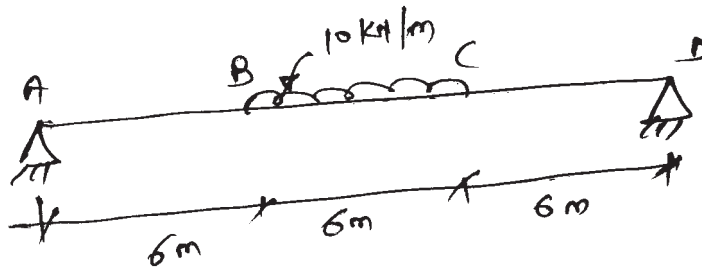
b) A simply supported beam of length 6m is loaded as shown in figure. Determine the maximum deflection. [6]



OR

**Q6) a)** Analyse the frame as shown in Q.5 (a) by portal method. [10]

b) The beam is loaded & supported as shown in fig. Determine deflection at nodal points. Take 3 nodes. [8]



**Q7) a)** Explain the terms: [8]

i) Constant strain Triangle.

ii) Linear strain Triangle.

iii) Higher order elements.

iv) Nodes.

b) Explain shape function for Quadratic rectangular element. [8]

OR

**Q8) a)** Explain shape function & state properties of shape function. [8]

b) Differentiation between Axisymmetric & Isoparametric elements. [8]

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