

STRUCTURAL ANALYSIS - II

(2012 Pattern) (Semester - I)

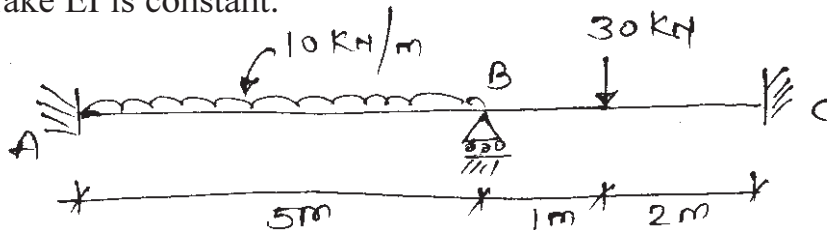
Time : 2½ Hours

[Max. Marks :70]

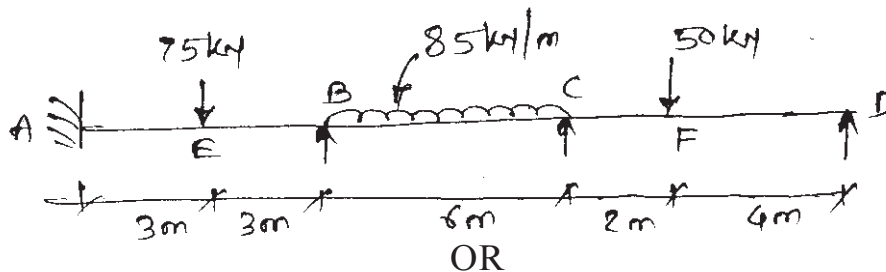
Instructions to the candidates:

- 1) Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or 6, Q.7 or Q.8.
- 2) Figures to the right indicate full marks.
- 3) If necessary, assume suitable data & indicate clearly.
- 4) Use of electronic pocket calculator is allowed.

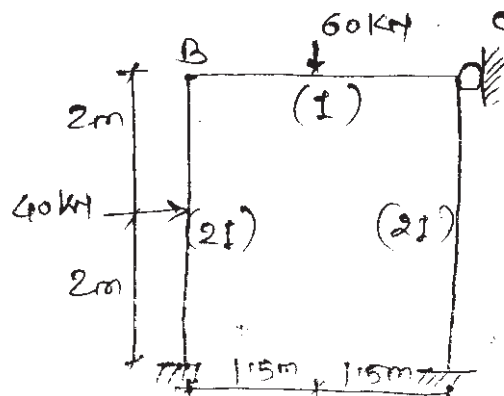
- Q1) a)** Analyse the beam by slope deflection method. Draw BMD & SFD. Take EI is constant. [10]



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

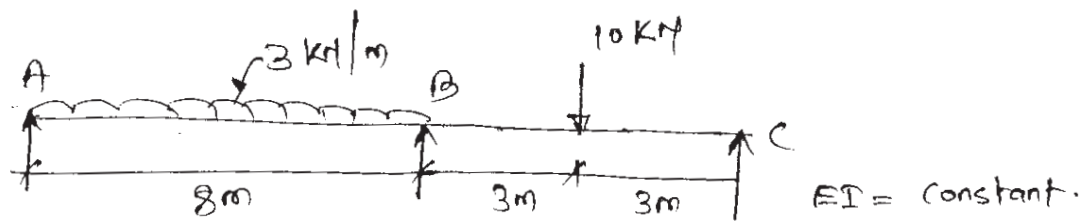


- Q2) a)** Analyze the frame as shown in figure. The relative value of 'I' of each member are indicated in figure. 'E' is constant. Use slope deflection method. [10]

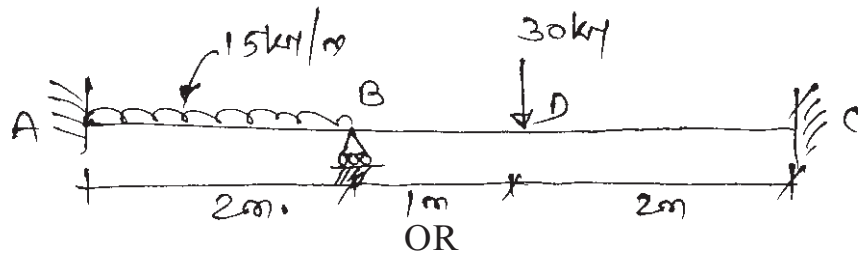


P.T.O.

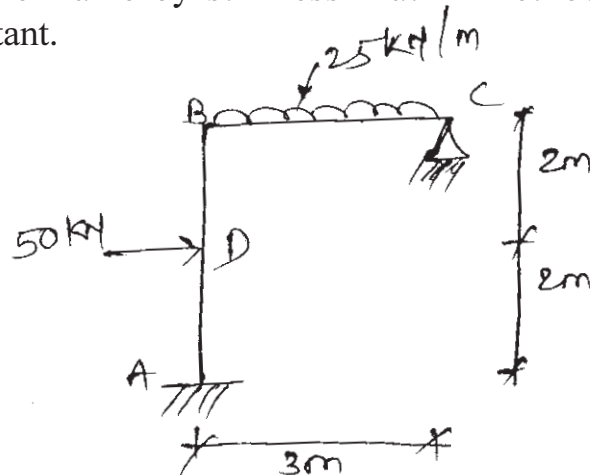
- b) Analyse the continuous beam shown in figure below by moment distribution method. Draw BMD & SFD. [10]



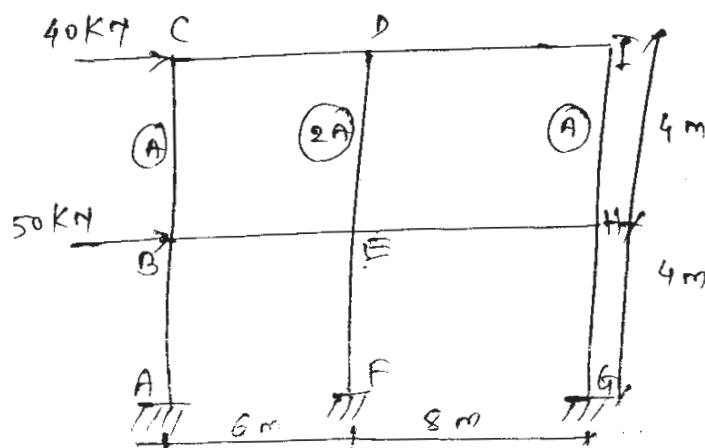
- Q3) Analyse the beam shown by stiffness matrix method. Draw BMD & elastic curve. $EI = \text{Constant}$. [16]



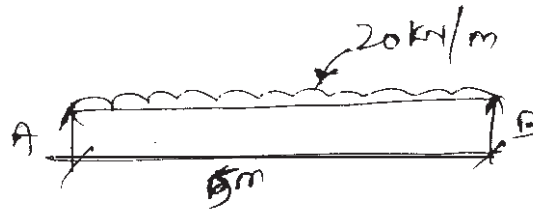
- Q4) Analyse the frame by stiffness Matrix Method & Sketch BMD. Take $EI = \text{Constant}$. [16]



- Q5) a) Analyse the frame by using cantilever Method. Area of each exterior column is one half area interior column. [12]



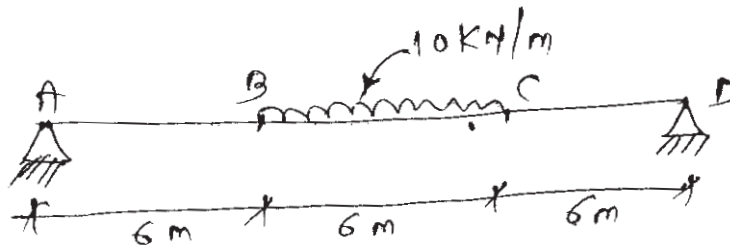
- b) A simply supported beam of length 5m is loaded as shown in figure. Determine the maximum deflection. [6]



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 figure. Determine deflection at nodal points. Take 3 nodes. [8]



- Q7) a) Explain. [8]

- i) Nodes.
- ii) CST.
- iii) LST
- iv) QST.

- b) Explain plain stress & plain strain problem. [8]

- Q8) a) Differentiate between Axisymmetric & Isoparametric element. [8]

- b) Explain shape function & state properties of shape function. [8]

