

**STRUCTURAL ANALYSIS-II  
(2012 Pattern) (Semester-I)**

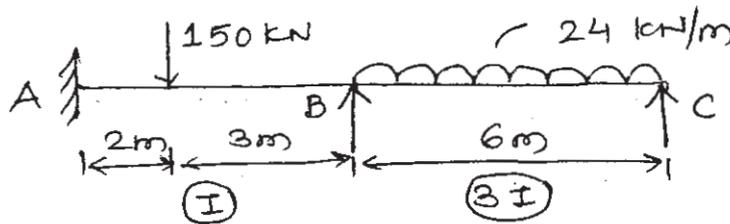
Time : 2½ Hours]

[Max. Marks :70

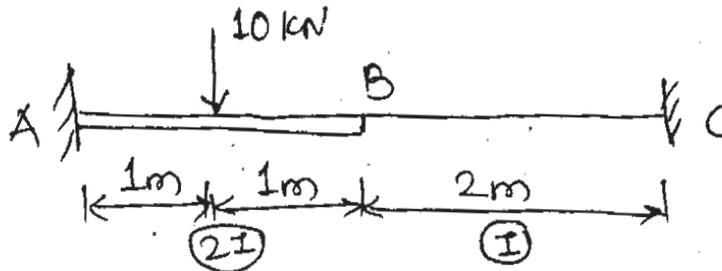
Instructions to the candidates:

- 1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 2) Figure to right indicate full marks.
- 3) Use of non-programmable calculator is allowed.
- 4) Assume suitable data, if necessary.

Q1) a) Analyze the beam by slope deflection method. Draw BMD. [10]

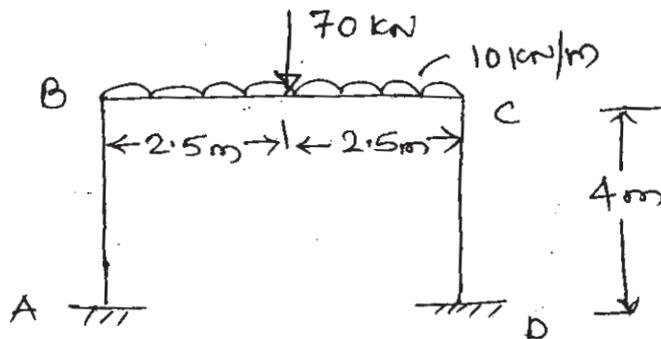


b) Analyze the beam by flexibility method. Draw BMD. [10]



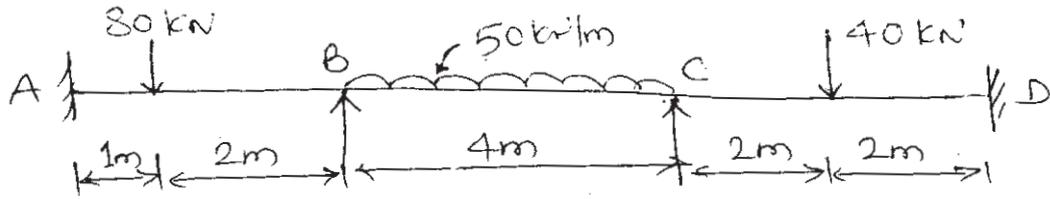
OR

Q2) a) Analyze the frame by slope deflection method. Draw BMD. [10]

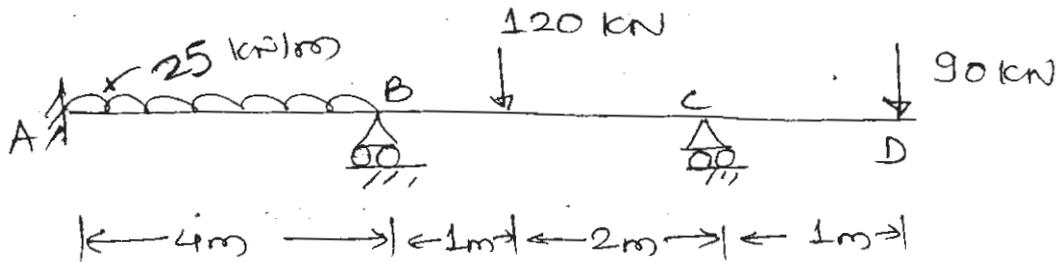


P.T.O.

b) Analyze the beam by moment distribution method. Draw BMD. [10]

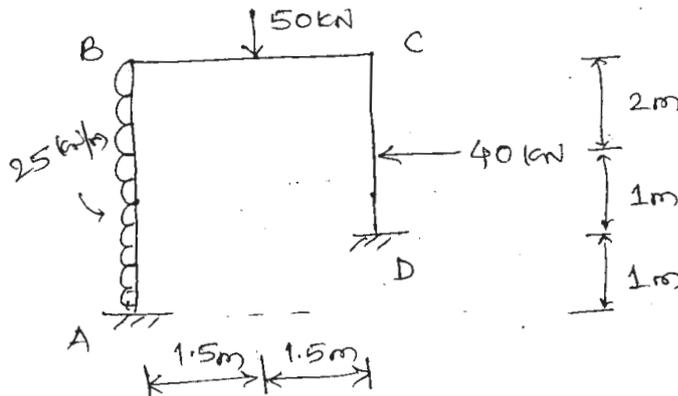


Q3) Analyze the beam by stiffness matrix method Draw SFD and BMD. [16]

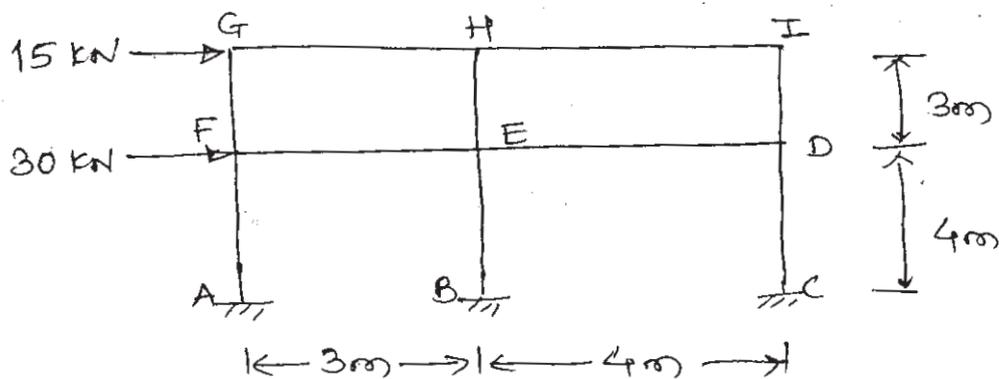


OR

Q4) Analyze the portal frame by stiffness matrix method. Take  $EI = \text{constant}$ . Draw SFD & BMD. [16]



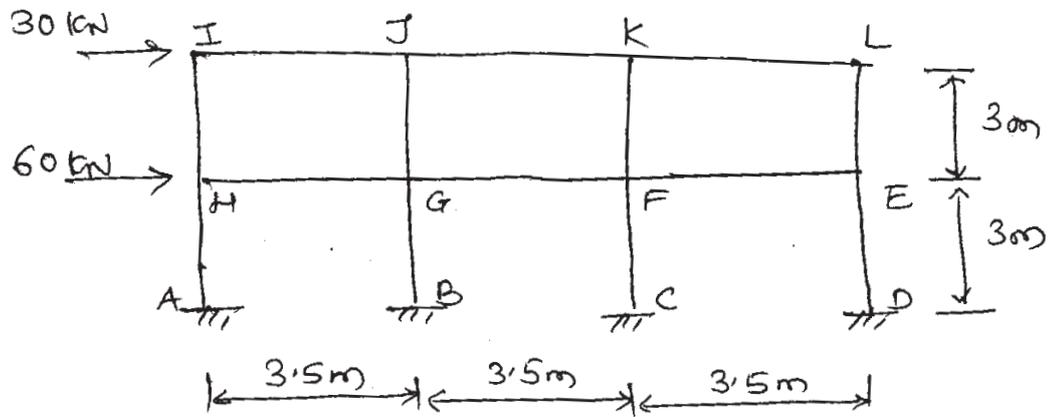
Q5) a) Analyze the frame by portal method. [12]



- b) A simply supported beam is loaded with udl of 25 kN/m. Find maximum deflection. [6]

OR

- Q6) a) Analyze the frame by cantilever method. [12]



- b) A cantilever beam loaded with udl of 20 kN/m, find the maximum deflection. [6]

- Q7) a) Explain principle of minimum potential energy. [8]

- b) Explain constant strain triangle and linear strain triangle. [8]

OR

- Q8) a) Explain convergence criteria for FEM. [8]

- b) Explain shape functions for quadratic rectangular element. [8]

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