

[5353]-504

T.E. (Civil)

STRUCTURAL ANALYSIS - II

(2015 Pattern) (Semester - I)

Time : 2½ Hours]

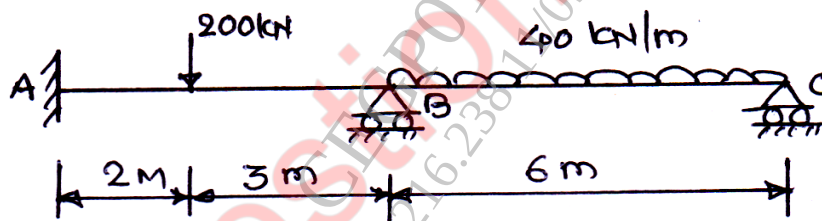
[Max. Marks : 70

Instructions to the candidates:

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figures to the right indicate full marks.
- 3) Use of non-programmable calculator is allowed.
- 4) Assume suitable data, if necessary.

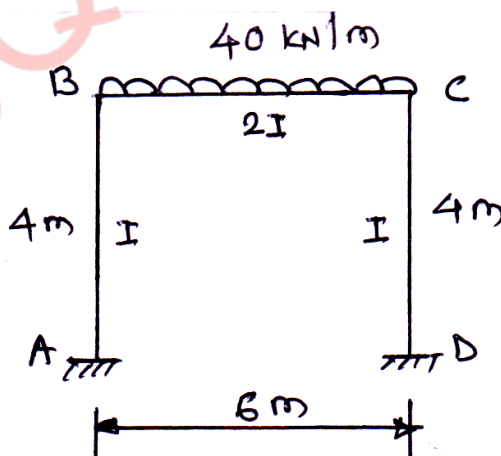
- Q1) a) Analyze the beam by slope deflection method. Draw B.M.D.
Take $EI = \text{constant}$.

[10]



- b) Analyze the frame as shown by moment distribution method. Draw B.M.D.

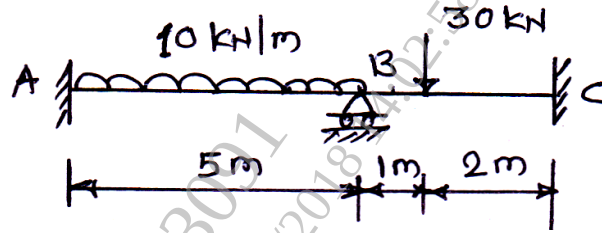
[10]



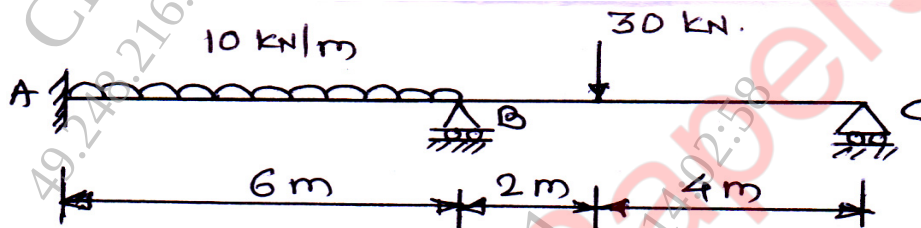
OR

P.T.O.

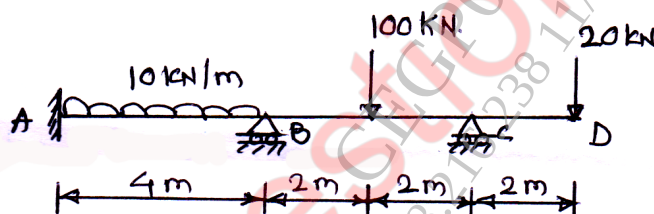
- Q2) a) Analyze the continuous beam by moment distribution method. Draw S.F.D. and B.M.D. [10]



- b) Analyze the beam by flexibility method if support B sink by 25mm. Take $EI = 3800 \text{ kN.m}^2$. [10]

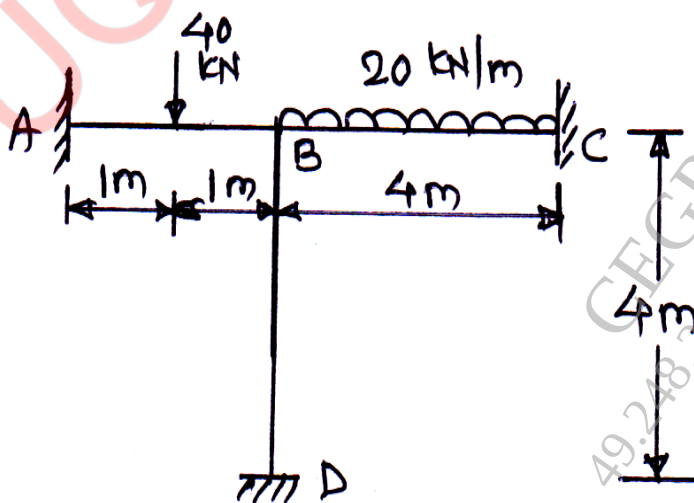


- Q3) Analyze the beam by stiffness matrix method. Draw B.M.D. [16]

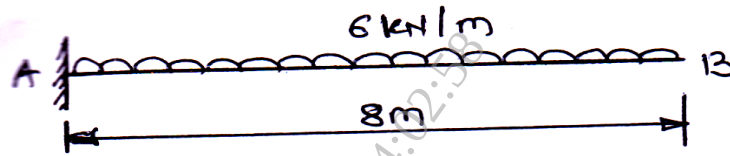


OR

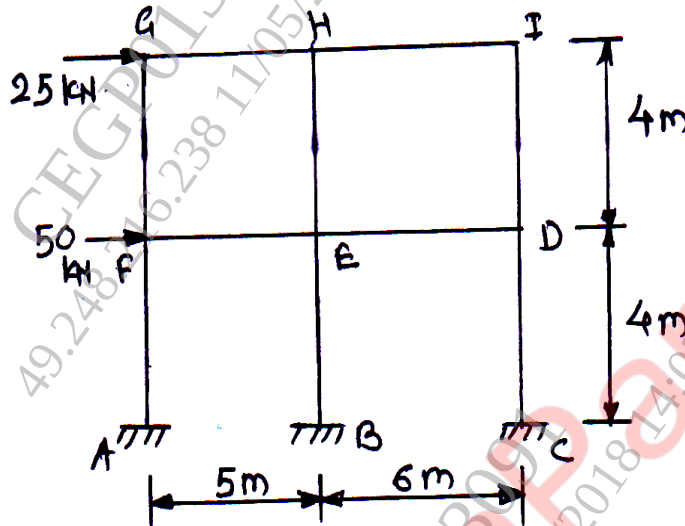
- Q4) Analyze the frame by stiffness matrix method. Draw B.M.D. [16]



Q5) a) Find the nodal deflection for the beam by using FDM. Take 5 Nodes. [6]

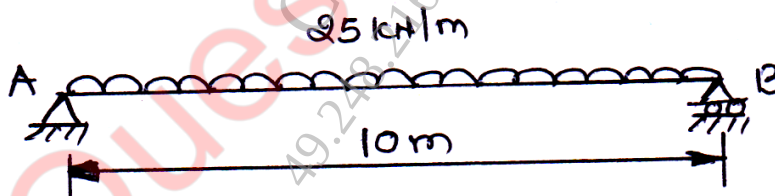


b) Analyze the frame by portal method. Draw B.M.D. [12]



OR

Q6) a) Find the maximum deflection for the beam by using FDM. Take 3 Nodes. [6]



b) Analyze the frame shown in fig. Q.5 (b) by cantilever method. Draw B.M.D. [12]

Q7) a) Explain plain stress and plain strain problem with example. [8]

b) Explain the concept of Pascals Triangle. [4]

c) Define CST and LST. [4]

OR

Q8) a) Define :

[8]

- i) Isoparametric element
 - ii) Subparametric element
 - iii) Superparametric element
 - iv) Shape function
- b) Explain the concept of Discretization with example. **[4]**
- c) Derive the equation for minimum potential energy. **[4]**

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