Total No. of Questions : 8]

SEAT No. :

P3241

[Total No. of Pages : 4

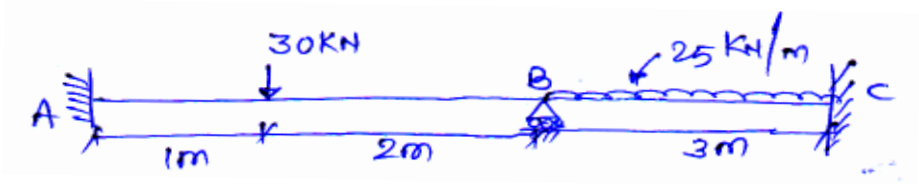
[5353] - 104
T.E. (Civil Engineering)
STRUCTURAL ANALYSIS - II
(2012 Pattern)

Time :2½ Hours] *[Max. Marks :70*

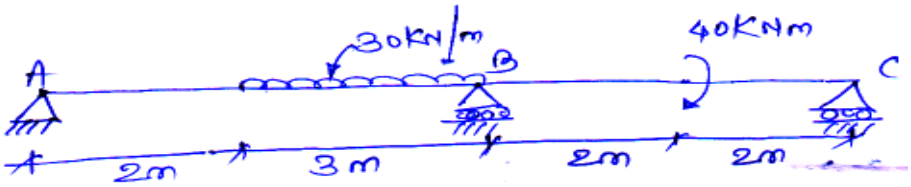
Instructions to candidate:

1) ***Attempt 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) ***Assume suitable data if necessary & indicate clearly.***
4) ***Use of electronic non-programmable calculator is allowed.***

Q1) a) Determine the support moments by using slope deflection method for the beam shown in figure. Take EI = Constant. **[10]**

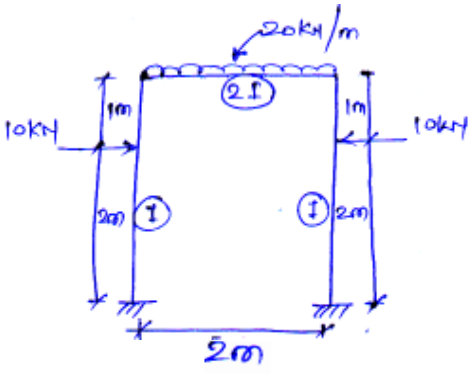


b) Analyse the beam shown in fig. by flexibility method. Take EI = constant.**[10]**



OR

Q2) a) Analyse the beam by slope deflection method. Draw SFD & BMD.**[10]**



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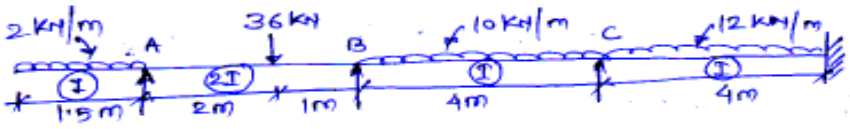
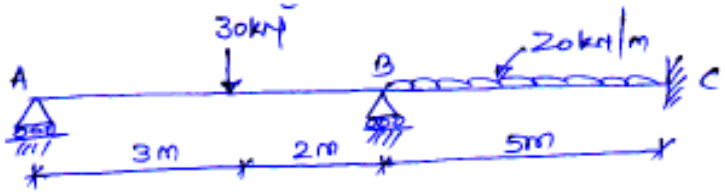
b) Determine moment at support of the continuous beam using moment distribution method.Draw BMD. **[10]**

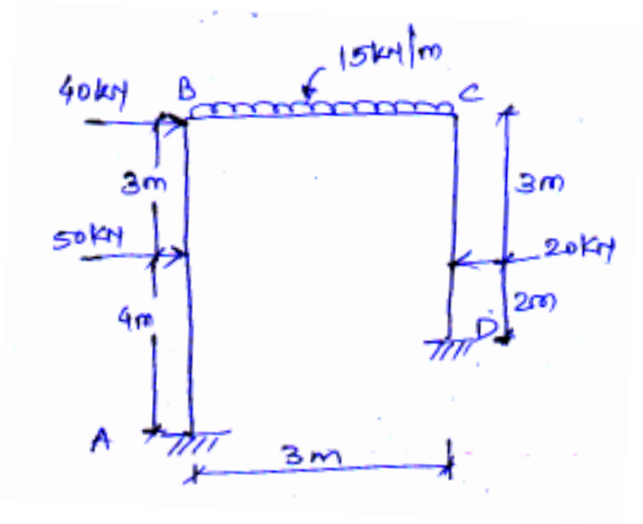


Q3) Analyse the beam shown in fig. by stiffness method. Support 'B' sinks by 30mm. Take EI = 380 kNm^2. **[16]**

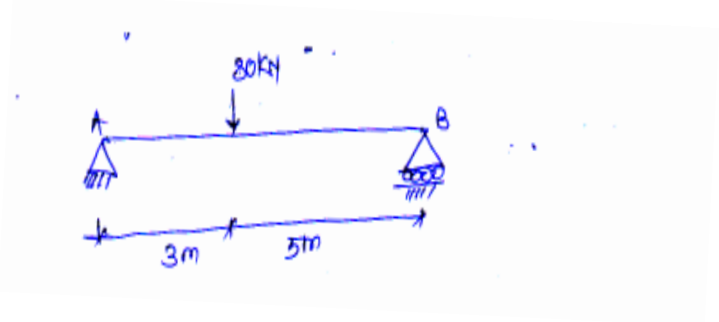


OR

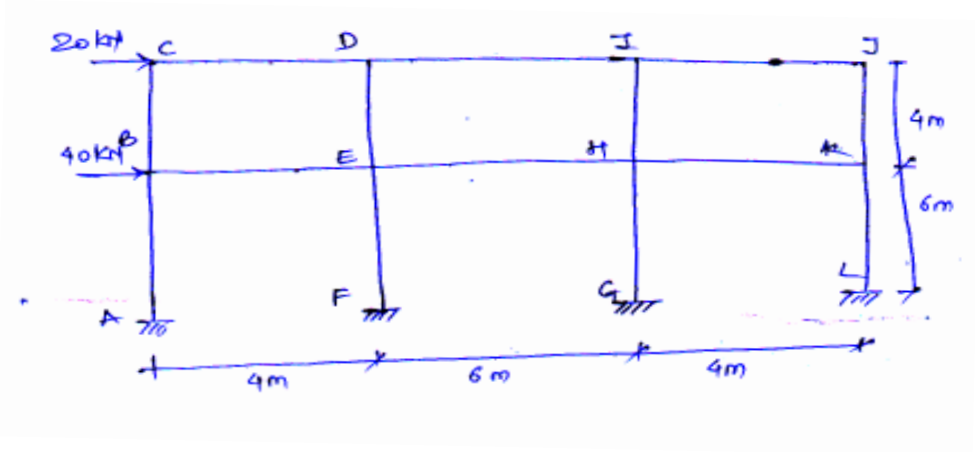
Q4) Analyse the frame by stiffness matrix method. Take EI = const. **[16]**



Q5) a) The beam is supported & loaded as shown in fig. find defl^n under load. Take 5 nodes **[8]**

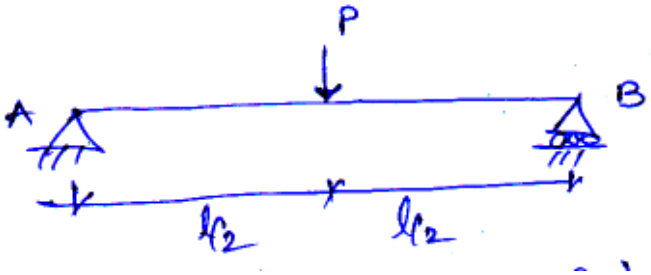


b) Analyse the frame shown in fig. by cantilever method & draw BMD. **[10]**



OR

Q6) a) The beam is supported & loaded as shown in fig. Determine deflection at centre. Use finite difference method. **[8]**



b) Analyse portal frame of Q. 5 (B) by using portal method. Draw BMD. **[10]**

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

i) Axisymonetric element

ii) Shape function

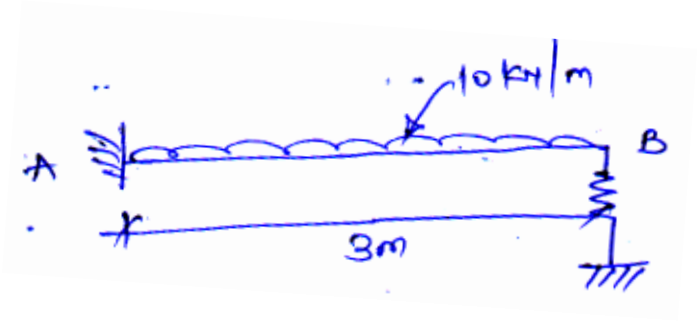
iii) Quatrilateral element

iv) Quadratric stress - strain triangle

b) Determine shape function for constant strain triangle. Use polynominal function. **[8]**

OR

Q8) a) Analyse the beam shown in figure. Take EI = constant stiffness of spring is EI/2 **[8]**



b) Explain terms **[8]**

i) Nodes

ii) Constant strain triangle

iii) Linear strain triangle

iv) Higher order elements

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