Total No. of Questions : 12]

SEAT No. :

P3890

[Total No. of Pages : 5

[4958]-101
T.E. (Civil)
STRUCTURAL ANALYSIS - II
(2008 Pattern)

Time : 3 Hours] *[Max. Marks : 100*

Instructions to the candidates:

1) ***Answer Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8, Q9 or Q10 and Q11 or Q12.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume any other data, if necessary.***
5) ***Answer to the two sections should be written in separate answer books.***

SECTION - I

Q1) a) Analyse the Continuous beam ABCD as shown in fig Q.1.a by Slope Deflection Method & Draw SFD & BMD. **[9]**

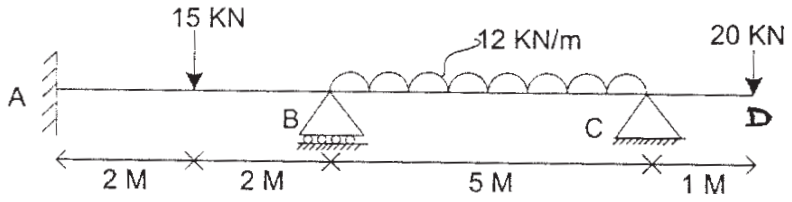

Fig. Q.1

b) Analyse the Continuous beam ABC as shown in fig.Q.1.b by Slope Deflection Method & Draw SFD & BMD. **[9]**

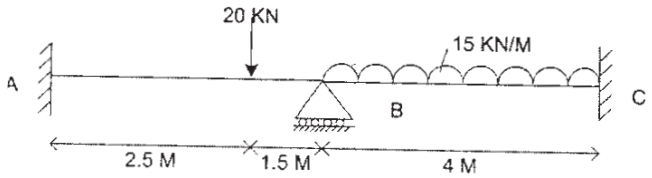

Fig. Q.1.b

OR

P.T.O.

Q2) Analyse the portal frame loaded as shown in fig Q.2 by Slope Deflection Method & Also draw SFD, BMD & Elastic Curve **[18]**

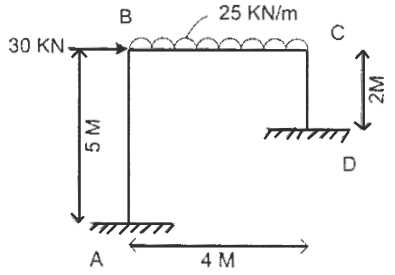

Fig. Q.2

Q3) a) Analyse the continuous beam as shown in fig.Q.3.a by using Moment Distribution Method & Plot SFD, BMD. **[8]**

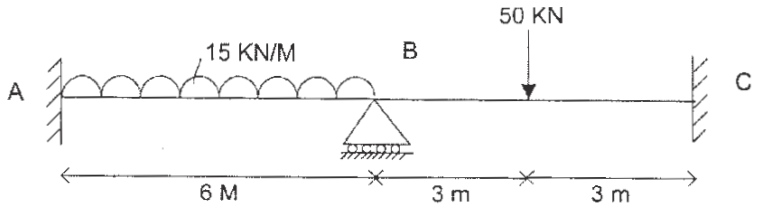

Fig. Q.3.a

b) Analyse the Continuous beam as shown in fig.Q.3.b by using Moment Distribution Method. Also Plot SFD & BMD. **[8]**

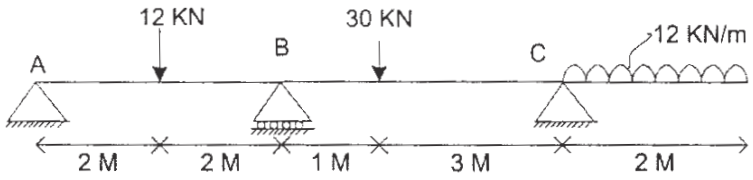

Fig. Q.3.b

OR

Q4) Analyse the portal frame loaded as shown in fig.Q.4. by using MDM.Plot SFD & BMD. **[16]**

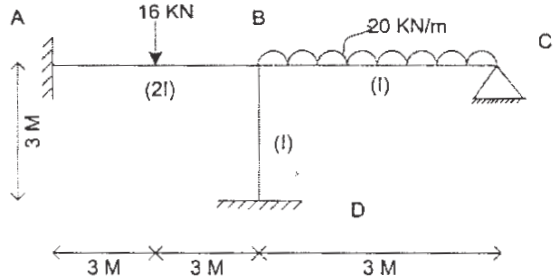

Fig. Q.4

Q5) a) A three Hinged arch is loaded & Supported as shown in Fig. Q.5.a. Determine Vertical & Horizontal reactions at supports **[8]**

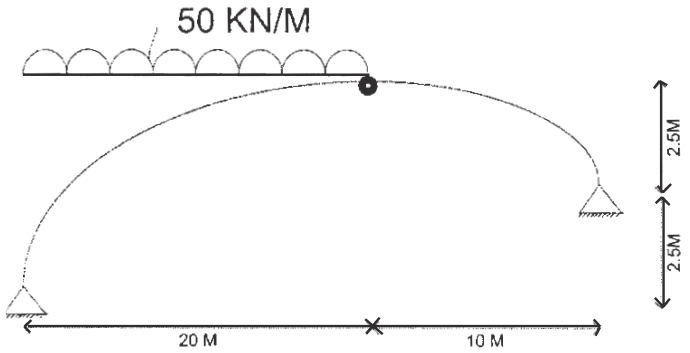

Fig. Q.5.a

b) Derive the Equation of a Horizontal thrust of Two hinged arch for Concentrated load at Crown. **[8]**

OR

Q6) a) A Three Hinged arch of span 20m is loaded & supported as shown in fig. Q.6.a Determine Normal Thrust & Radial Shear at 4m from the left support. **[8]**

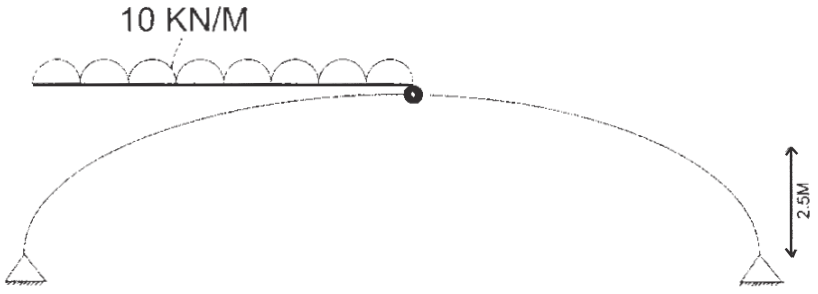

Fig. Q.6.a

b) Derive Equation for a Horizontal Thrust of Two hinged arch loaded with UDL on the Whole Span. **[8]**

SECTION - II

Q7) Analyze the frame as shown in fig.Q.7 by Flexibility Method. Draw SFD & BMD Assume EI constant **[16]**

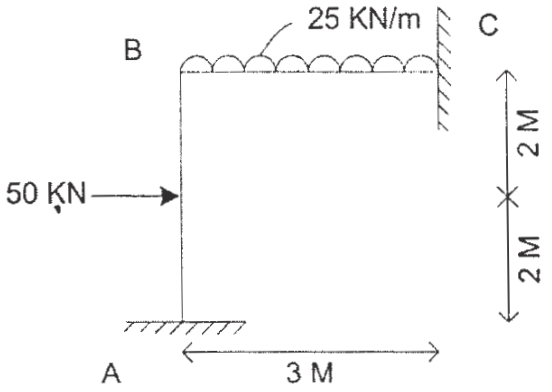

Fig. Q.7

OR

Q8) Analyze the beam as shown in fig.Q.8 by using Flexibility Method. Draw SFD & BMD. **[16]**

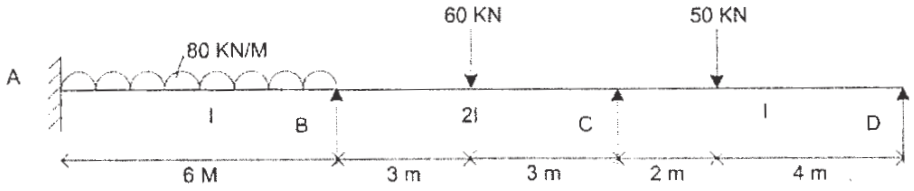

Fig Q.8

Q9) Analyze the Continuous beam as shown in fig.Q.8 by using Stiffness Method. Draw Deformation Cure, SFD & BMD. **[16]**

OR

Q10) Analyze the frame shown in fig.Q.10 by Stiffness Method & Draw BMD, SFD & Elastic Curve. **[16]**

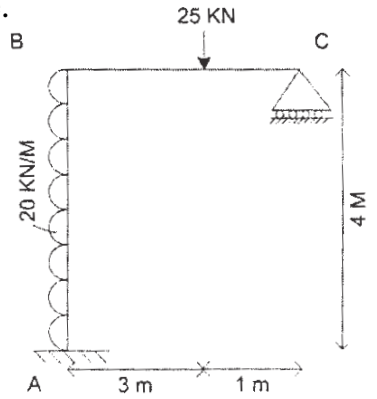

Fig Q.10

Q11)a) Determine the Deflection at the nodal points for the Beam AB loaded & Supported as Shown in Fig. Q.11.a **[6]**

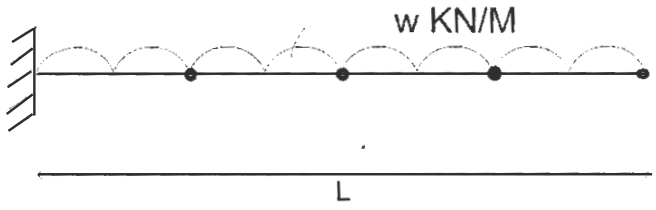

Fig Q.11. a

b) Determine the Approximate Values of Moments, Shear & Axial force in each member of frame shown in fig. 11.b Use Portal frame Method. **[12]**

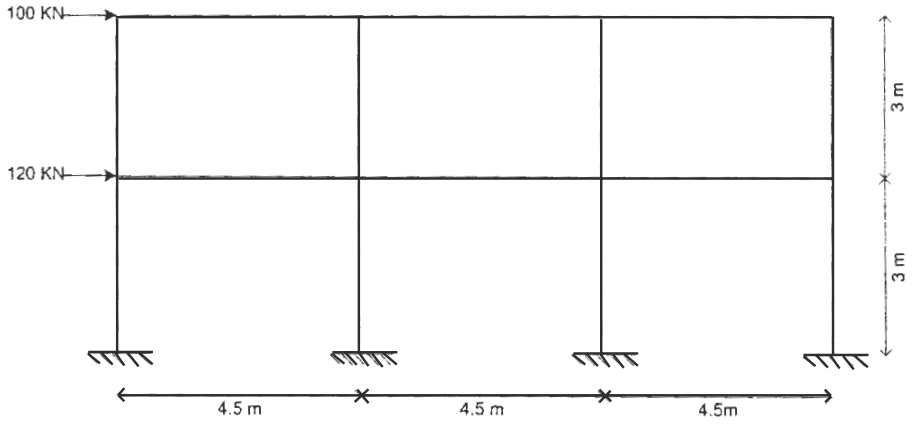

Fig. Q.11.b

OR

Q12)a) A simple Supported Beam of span 12 m is loaded with point loads 150 KN each @ quarter points using FDM. Find Deflection at centre of beam take EI = 4×10^5 KNM^2. **[6]**

b) Determine the Approximate Values of Moments, Shear & Axial force in each member of frame shown in fig.Q.11 b Use Cantilever Method.**[12]**