Total No. of Questions : 12]

SEAT No. :

P2021

[Total No. of Pages : 4

[4858]-101

T.E. (Civil) (Semester - I)

STRUCTURAL ANALYSIS - II

(2008 Pattern)

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

Instructions to the candidates:

1) *Answer any 3 questions from each Section.*
2) *Answers to the two sections should be written in separate books.*
3) *Figures to the right indicate full marks.*
4) *Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*

SECTION - I

Q1) Analyse the Continuous Beam Loaded as shown in Fig(1) by using Slope Deflection Method and sketch the BMD, Assume $2I_{AB}=I_{BC}=2I_{CD}$. **[16]**

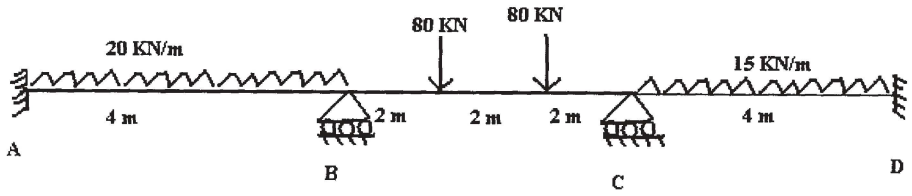

Fig (1)

OR

Q2) Analyse the structure as shown in fig(2) by using Slope Deflection Method and sketch the BMD. **[16]**

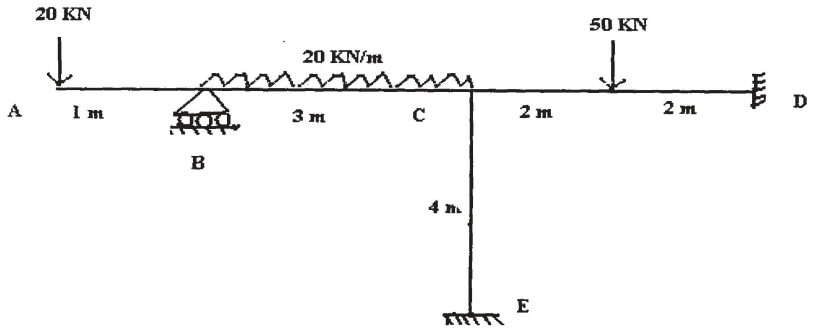

Fig (2)

P.T.O.

Q3) A simply supported beam ABCD, is 20 m long is simply supported at its ends and is propped at the same level at B and C as shown in fig (3), if support B is sink by 10 mm analyze the beam by using Moment Distribution Method and draw the B.M.D, Take E= 2.1 × 10^5 N/mm^2 and I= 85 × 10^4 mm^4. **[18]**

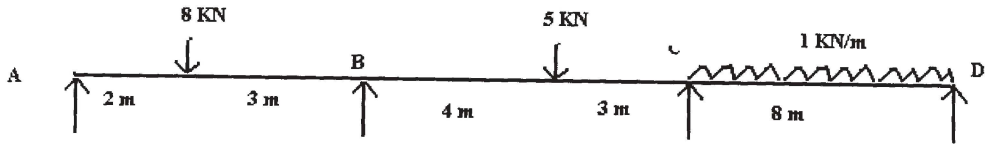

Fig-(3)

OR

Q4) Analyse the frame as shown fig (2) by using Moment Distribution Method and draw the S.F.D and B.M.D. **[18]**

Q5) A three hinged parabolic arch of 30 m span has its support at depths 4 m and 16 m below crown C. The arch carries a load of 80 KN at a distance of 5 m to the left of C, and second load of 100 KN at 10 m to the right of C, find the reactions at support and bending moment under the loads. **[16]**

OR

Q6) a) A two hinged parabolic arch of span (L) and rise (h), carries a triangular load whose intensity varies from Zero at left end to w/m at a distance **a** from left end determine the horizontal thrust. **[8]**

b) A two hinged parabolic arch of span 20 m and rise 4 m carries UDL of 5 KN/m on left half of the span find the reactions at support and the position and amount of maximum bending moment. **[8]**

SECTION - II

Q7) a) Explain the concept of flexibility matrix. **[4]**

b) Analyze the beam as shown in fig (4) by flexibility method, assume EI=constant. **[12]**

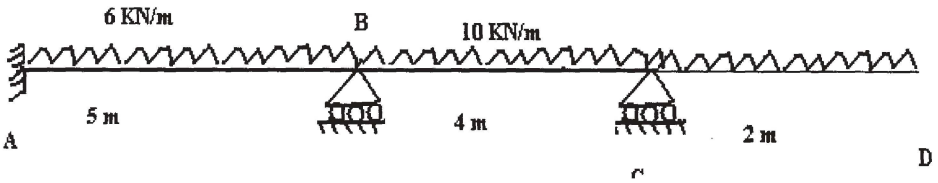

Fig -4

OR

Q8) Analyze the frame as shown in fig (5) by flexibility method. **[16]**

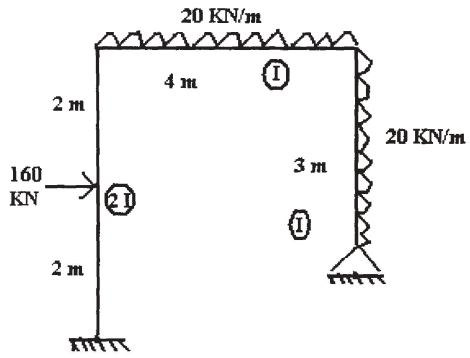

Fig-5

Q9) Analyze the beam as shown in fig (4) by using stiffness method take EI=Constant. **[16]**

OR

Q10) Analyze the frame as shown in fig (5) by Stiffness method. **[16]**

Q11) a) Determine the deflections at Nodal Points for beam AB loaded and supported as shown in fig (6) take 05 nodes. **[6]**

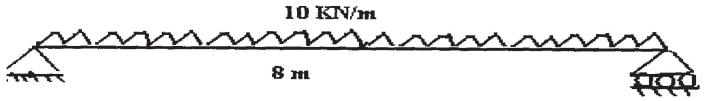

Fig-6

b) Analyze the frame by using Portal method as shown in fig (7) and draw the BMD -----. **[12]**

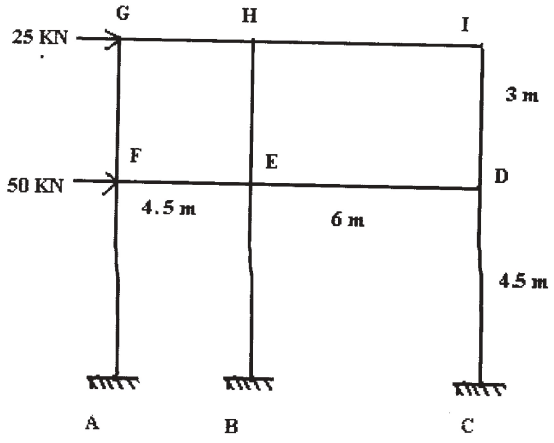

Fig-7

OR

Q12) a) Determine the deflections at Nodal Points for beam loaded and supported as shown in fig (8) take 05 nodes. **[6]**

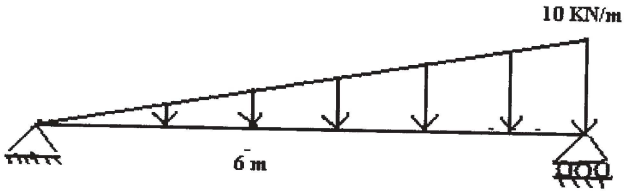

Fig-8

b) Analyze the frame by using Cantilever method as shown in fig (9) and draw the BMD, assume all columns are having same cross sectional Area. **[12]**

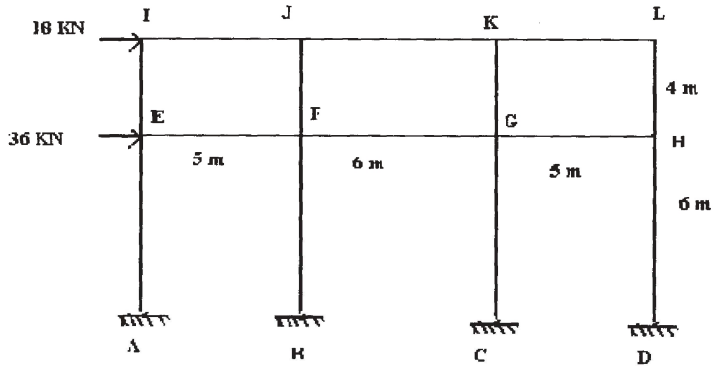

Fig-9