(c) Develop the stiffness matrix for space frame member. 10

(d) Develop the stiffness matrix for grid structure. 10

6. Write short notes on any *three* of the following : 20

(a) Force transformation and displacement transformation matrix

(b) Rotational stiffness coefficient

(c) Comparison of force and displacement method

(d) Equivalent joint loads

Total No. of Questions : 8] [Total No. of Printed Pages : 4

Roll No.....

MVSE–103

M. E. (First Semester) EXAMINATION, Feb.March, 2009

(Civil Engg. Branch)

(Specialization in Computer Aided Structural Design)

ADVANCE STRUCTURAL ANALYSIS

(MVSE – 103)

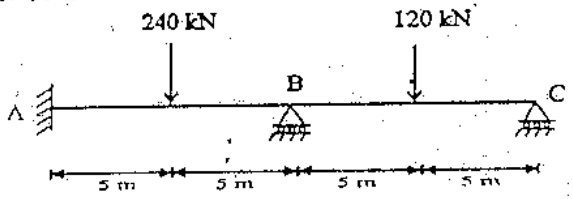
Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks. Standard results for deflections and fixed moments are allowed. Assume missing data if any.

1. Analyse the continuous beam shown in fig. 1 by flexibility method. Consider fixed end moment at A and vertical reaction at B as redundant. 20

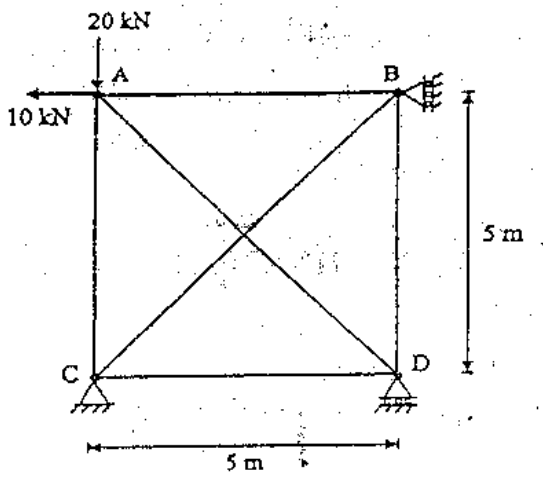


(EI Constant)

Fig. 1

2. (a) Describe the basic concept of flexibility method. 6

(b) Analyse the plane truss shown in fig. 2 by flexibility method. 14

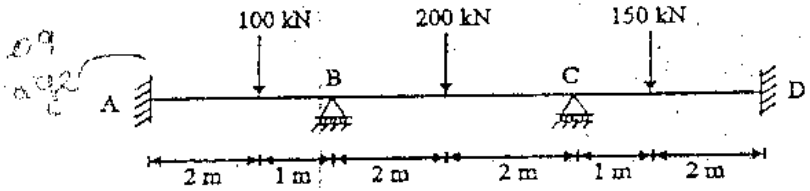


(EA Constant)

Fig. 2

3. (a) Describe the basic concept of Stiffness method. 6

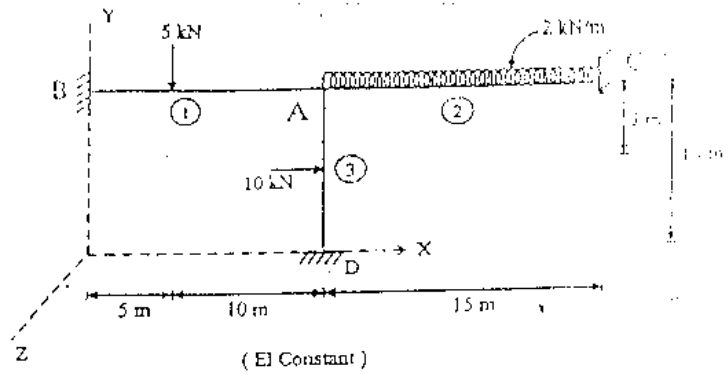
(b) Analyse the continuous beam as shown in fig. 3 by Stiffness method. 14



(EI Constant)

Fig. 3

4. (a) Develop the joint stiffness matrix for the ahead frame as shown in fig. 4. 14



(EI Constant)

Fig. 4

(b) Explain the member stiffness matrix and system stiffness matrix.

5. (a) Explain the member co-ordinate and global co-ordinate system.

(b) Develop the stiffness matrix for space truss structure.

6. (a) Explain the approach followed in direct stiffness method in generating the member stiffness matrix for the structure axes.

(b) Analyse the frame shown in fig. 5 by stiffness method. 14