

M.Tech. Civil Engg. (Structural Engineering & Construction) (CBCS Pattern) Semester - I
PSES11 - Matrix Analysis of Structures

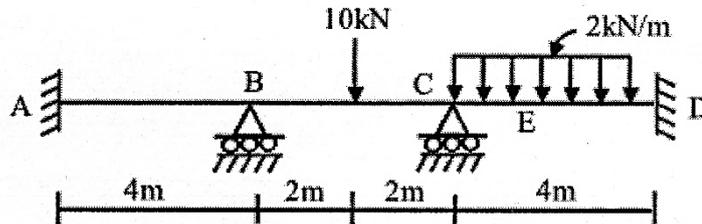
P. Pages : 2
 Time : Four Hours



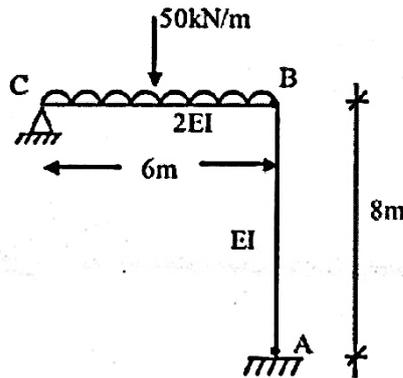
GUG/S/23/10961
 Max. Marks : 70

- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Assume suitable data wherever necessary.
 4. Diagrams and Chemical equation should be given wherever necessary.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. Solve **any five**.

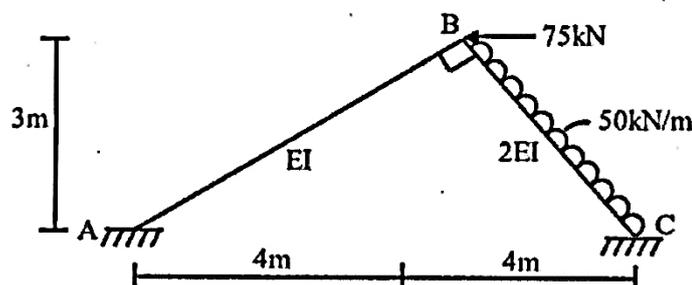
1. Derive load vector and displacement matrix for simply supported beam subjected to u kN/m uniformly distributed load along entire span of L and explain local and global stiffness matrix for simple truss member. **14**
2. Analyze the continuous beam shown in figure assume that the supports are unyielding. Assume EI to be constant for all members using direct stiffness method. **14**



3. Analyze the plane frame as shown in figure by direct stiffness method. Assume that the flexural rigidity for all members are the same. Neglect axial displacement. **14**

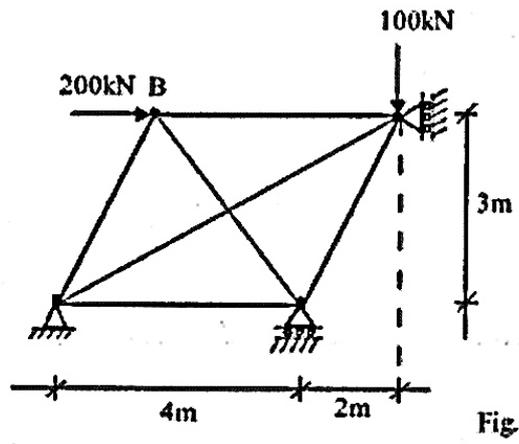


4. Analyze the frame shown in figure using direct stiffness method. **14**



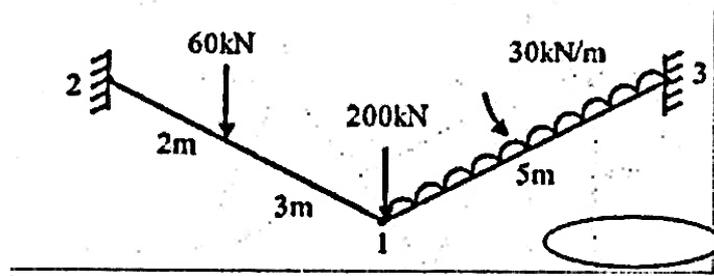
5. Analyze the following truss using direct stiffness method. AE/L is uniform.

14



6. Analyze the plane grid shown in figure.

14



7. Derive stiffness matrix for Truss element.

14
