

B.E. (Civil Engineering) Model Curriculum Semester-VII
PCC1-CE701 - Structural Analysis-III

P. Pages : 2

Time : Four Hours

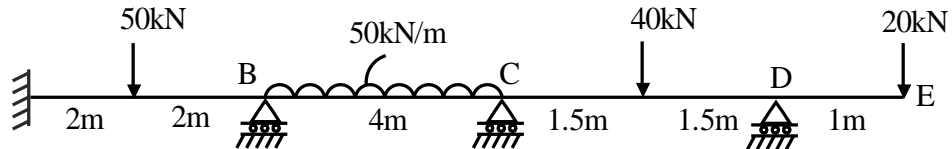


GUG/W/24/14285

Max. Marks : 80

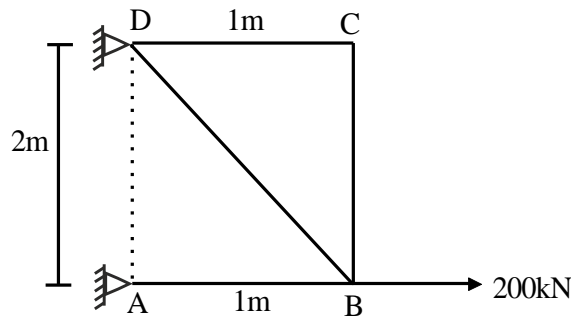
- Notes :
1. All questions carry equal marks.
 2. Due credit will be given to neatness and adequate dimensions.
 3. Illustrate your answers wherever necessary with the help of neat sketches.

1. Analysis the beam by stiffness matrix method. 16



OR

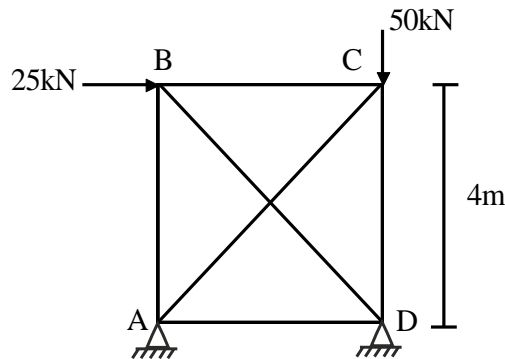
2. Find global stiffness matrix for the following plane truss. 16



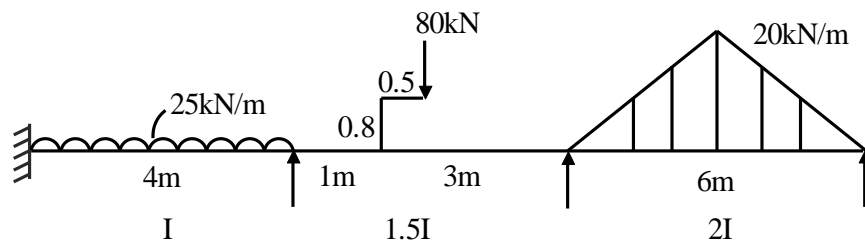
3. Derive the member stiffness matrix for 2 Noded beam element with 3DOF per node. 16

OR

4. Analyse the plane truss shown in fig. 16



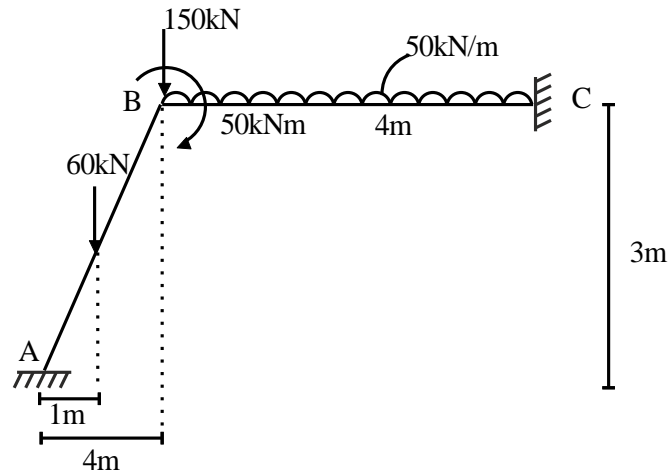
5. Analyse the beam by stiffness matrix method. 16



Support sinks by 10 mm $EI = 12000 \text{ kN} - \text{m}^2$

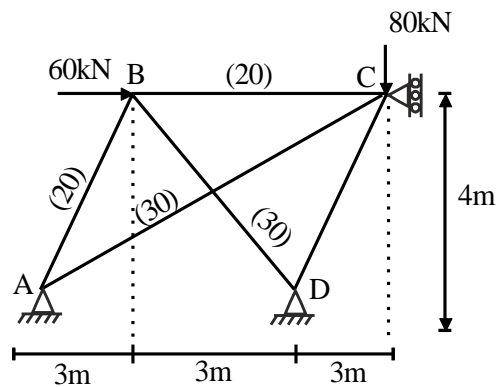
OR

6. Analyse the Frame shown below using stiffness Matrix method. 16



$E = 25 \cdot 5 \times 10^6 \text{ kN / m}^2$
 $b = 35 \text{ cm}$
 $d = 60 \text{ cm}$

7. Analyse the plane truss shown in fig. considering following condition. 16



Area in cm^2
 $E = 200 \text{ GPa}$
 1) Member AC of too long by 2 mm.
 2) BC if pre-tension by 60kN.

OR

8. a) Explain Rayleigh Ritz Method to solve the problem two noded bar element. 8
- b) What if shape function & its use in FEM. 8
9. a) Explain detail concept of finite element. 8
- b) Explain clearly with example the D' Alembert's principle. 8
- OR
10. a) Explain the interpolation function & its use in FEM with suitable example. 8
- b) What are storage techniques. 8
