

**III B.Tech II Semester Supplementary Examinations,
November/December 2005
STRUCTURAL ANALYSIS-II
(Civil Engineering)**

Time: 3 hours

Max Marks: 80

**Answer any FIVE Questions
All Questions carry equal marks**

1. A three hinged parabolic arch has a span 40 m and a rise of 4m. Using the influence lines, determine the maximum horizontal thrust 'H' and the moment at the quarter span point from the left hand support, when two loads 120 KN and 180 KN at 3m centre to centre moves from left to right with 120 KN load in the lead. [16]
2. The cable of a suspension bridge of span 100 m is hung from piers which are 10 m and 5m respectively above the lowest point of the cable. The load carried by the cable is 2 KN/m of span. Find the length of the cable between the piers, the horizontal pull in the cable and tension in the cable at the piers. [16]
3. (a) Differentiate between external and internal redundancies of trusses. Give suitable examples. [4]
- (b) Determine the vertical deflection at joint 'F' of the truss shown in figure 1. Take $A=2000\text{mm}^2$ and $E=200\text{ KN/mm}^2$ for all the members. [12]

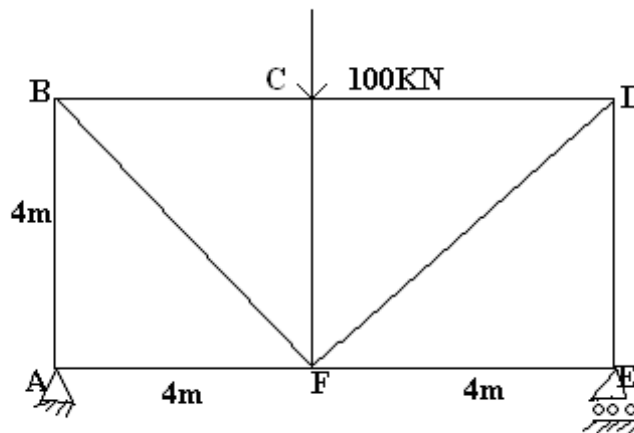


Figure 1:

4. Determine the moments at ABCD for the portal frame in figure 2. Use Kani's method. [16]
5. Analyse the continuous beam in figure 3 using slope deflection method. Draw BMD. [16]

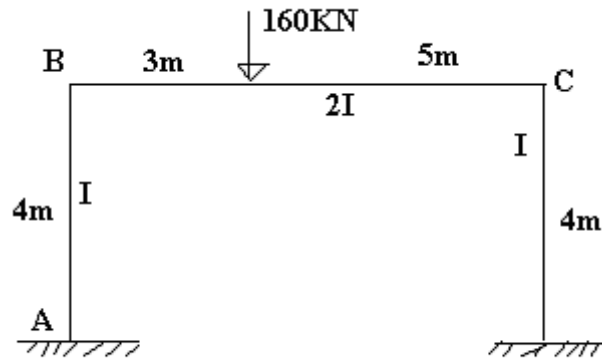


Figure 2:

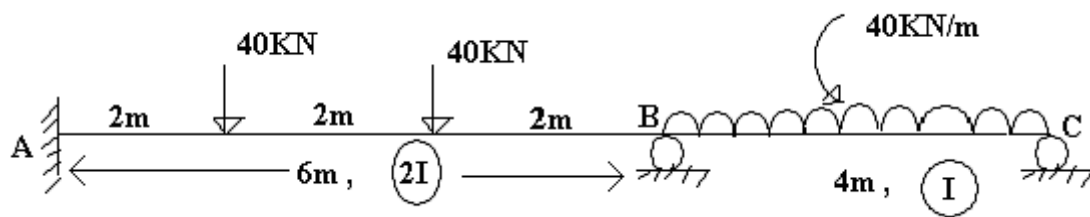


Figure 3:

6. Analyse the portal frame shown in figure 4 using the moment distribution method. Draw the BMD. [16]
7. Analyse the frame shown in figure 5: [16]
8. Develop the flexibility matrix for a continuous beam shown in figure 6: [16]

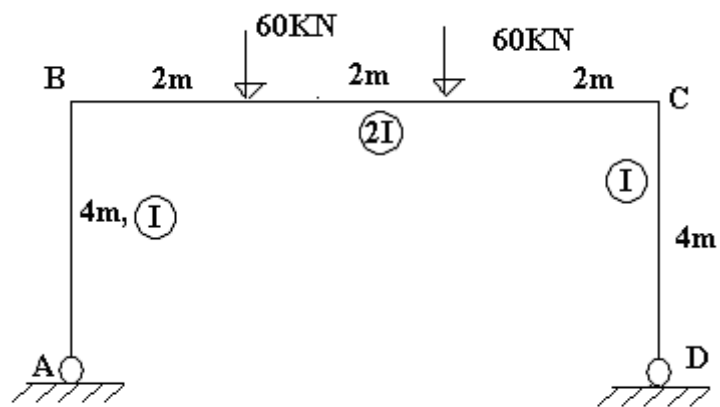


Figure 4:

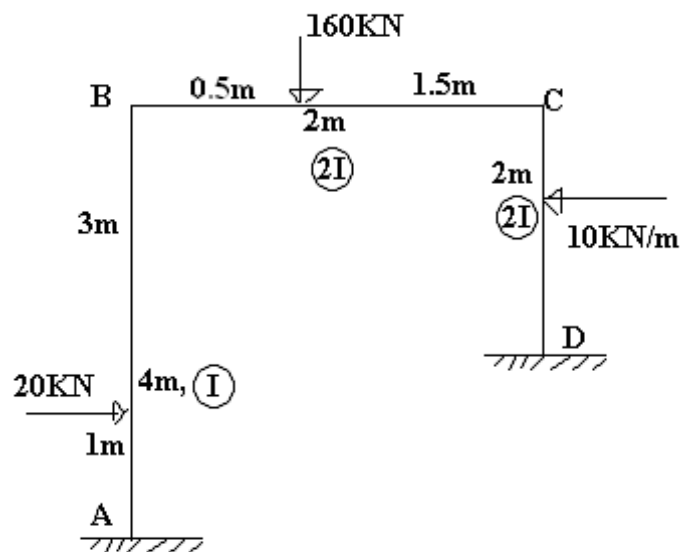


Figure 5:

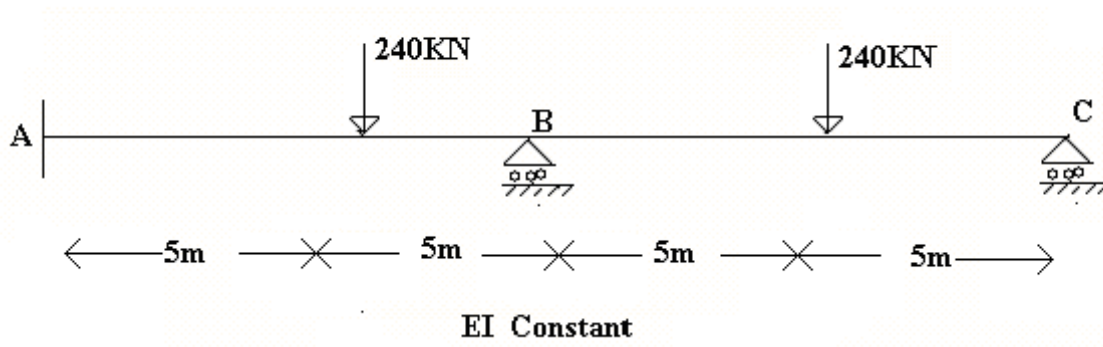


Figure 6:
