

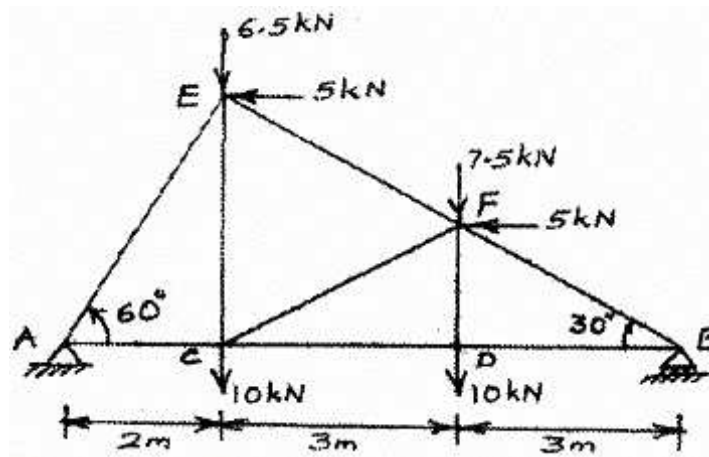
III B.Tech I Semester Supplementary Examinations, May 2005
STRUCTURAL ANALYSIS-I
(Civil Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
 All Questions carry equal marks

1. A propped cantilever of span 6m is subjected to two concentrated loads 14 kN and 20 kN at one third and two third points respectively from the fixed end. Find the reactions and fixing moments. Draw also the shear force and bending moment diagrams for the beam. EI is constant.
2. A fixed beam AB of span 6 m is subjected to a concentrated couple of 300 kN-m applied at a section C, 4 m from the end A. Find the end moments from the first principles and draw the bending moment and shear force diagrams.
3. A pin jointed roof truss is loaded as shown in Figure. Determine the forces in members AE, AC, CE, CF, CD and EF using the method of tension coefficients.



4. A beam ABC 5.80 m long is fixed at A and simply supported at B (4 m from A) and free at C. It carries a point load of 5 kN at C. Analyse the beam for support reactions and draw the B.M.D and S.F.D
5. Determine the slope and displacement at the free end for a cantilever, span Lm loaded with UDL of w/m run EI is constant.
6. A uniformly distributed load of 2kN/m, 6m long crosses a girder of 20m span. Construct the maximum S.F diagrams and calculate its values at 4m, 6m and 10m from the left support.
7. A beam ABC is supported at A, B and C and has an internal hinge at D at a distance of 3m from A. AB=6m and BC=9m. Draw the influence lines for the reactions at supports and S.F and B.M at a point 1m from B in the span BC.

8. Consider two forces F and $2F$ acting on a particle. If the force F is increased by 20 kN and $2F$ is doubled, the direction of resultant is unaltered. Find the forces acting on it graphically.
