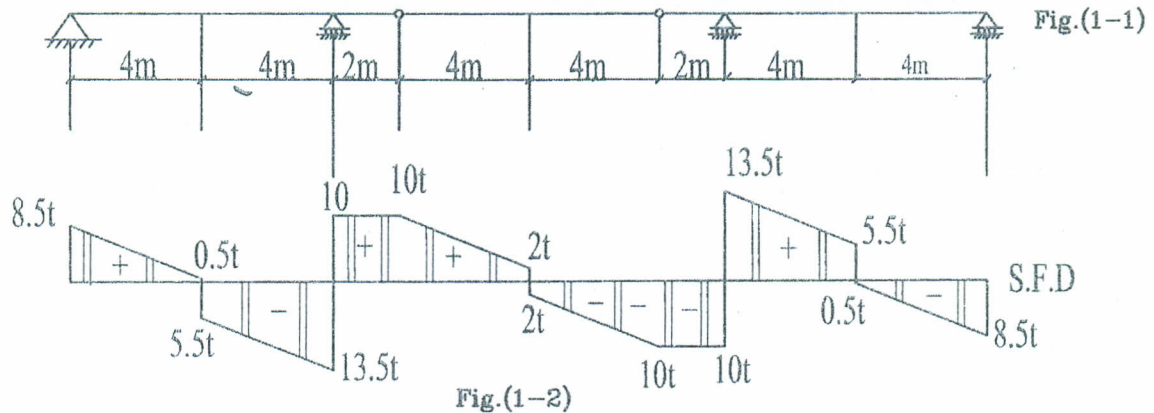


Any data missing may be assumed

MAXIMUM CREDIT = 120 Points

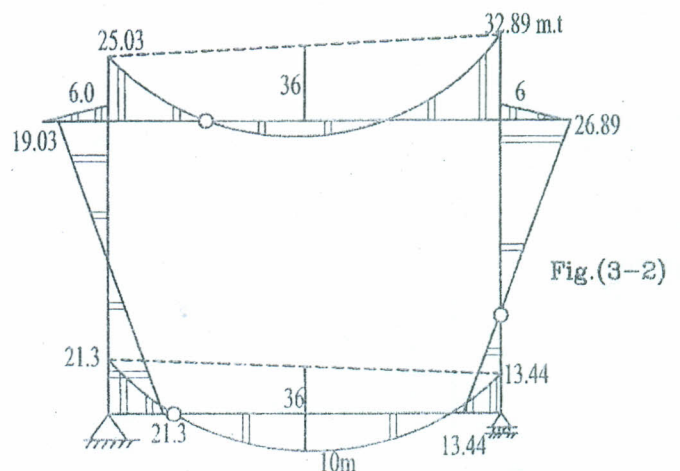
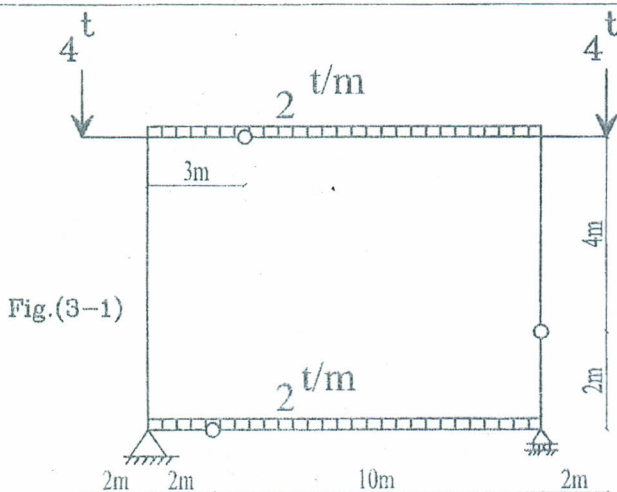
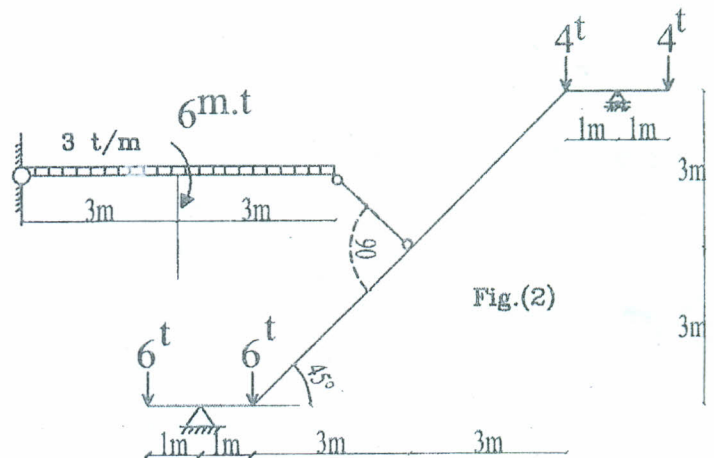
Question 1: (15+15)= 30 Points.

- i) For the beam shown in Fig.(1-1) with given S.F.D in Fig.(1-2), find the load system and then, draw final B.M.D.
 ii) For the beam shown in Fig.(2), draw the internal force diagrams.



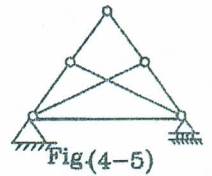
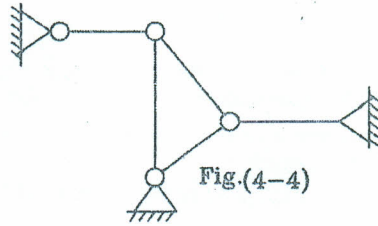
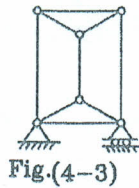
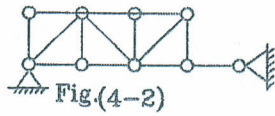
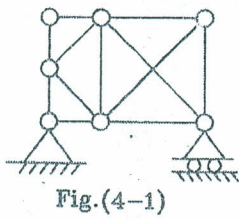
Question 2: 30 Points.

For the frame shown in Fig.(3-1), confirm that the internal bending moment diagram is given in Fig.(3-2), and then draw the S.F.D. and N.F.Ds.



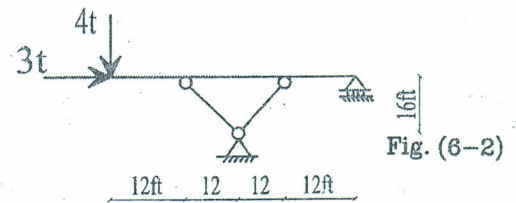
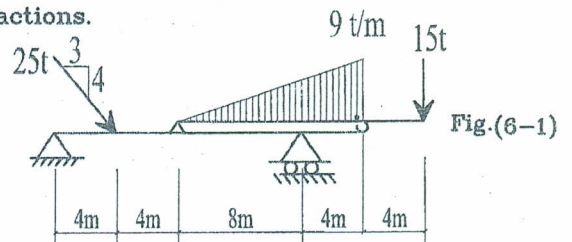
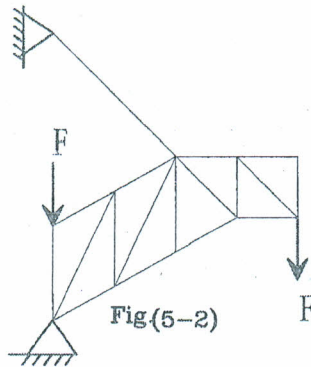
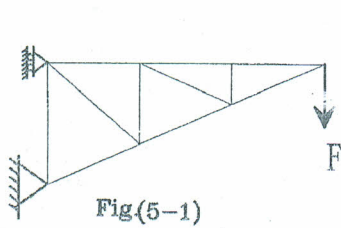
Question 3: 21(5+8+8) Points.

i) For the trusses shown in Figs.(4), check the stability and determinacy, giving your comment.



ii) For the trusses shown in Figs.(5), indicate zero members by * and equal member forces by other symbols.

iii) For the beams shown in Figs.(6), calculate the reactions.



Question 4: 45(10+10+10+15) Points.

- i) For the truss shown in Fig.(7-1), draw the force polygon for the equilibrium at joint A.
- ii) For the truss shown in Fig.(7-2), calculate the force in all members using a suitable method.
- iii) For the cantilever truss shown in Fig.(7-3), draw the influence lines for marked bar members.
- iv) For the beam shown in Fig.(7-4), draw the influence lines for reactions at supports, and internal forces (M, and Q) at sections m, n, and o. Then, find the extreme values for moment and shear at sections m and n due to a uniform of distributed dead and live loads of 2 t/m and 8 t/m, respectively.

