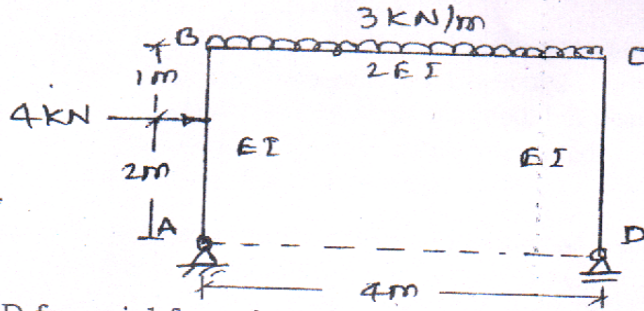


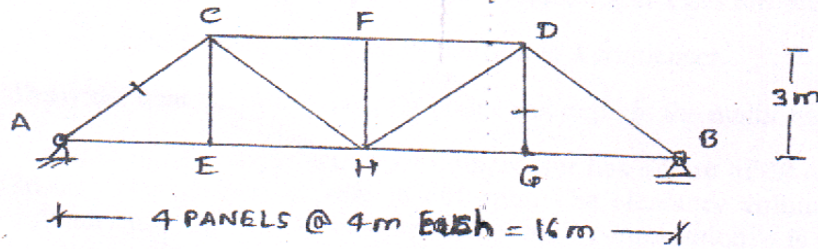
Q.6 a) For the rigid jointed plane frame loaded & supported as shown, determine the horizontal movement of roller support 'D'. Use **Virtual Work Method**.
Take $EI = \text{Constant}$

(12)



b) Draw ILD for axial force in the members 'AC' and 'DG' of a simply supported bridge truss shown in figure. Also find the maximum values of these forces if a load of 90 kN moves along the bottom chord members.

(08)



Q.7 a) A simply supported girder of span 50 m is traversed by a series of wheel loads 160 kN, 200 kN, 180 kN and 140 kN spaced at distances 2m, 1.5m and 1 m respectively. The load system moves from left to right with 140 kN load leading. Find the location & magnitude of absolute maximum bending moment anywhere in the girder.

(08)

(b) Using unit load method or any other energy method, find the vertical deflection of joint 'E' of a pin jointed truss loaded & supported as shown in figure. Take $AE = \text{Constant}$ for all members.

(12)

