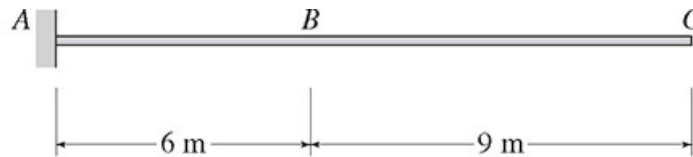


Assignment # 6

Due date: Week of 10-31-2016

**Question 1 (6 Marks)**

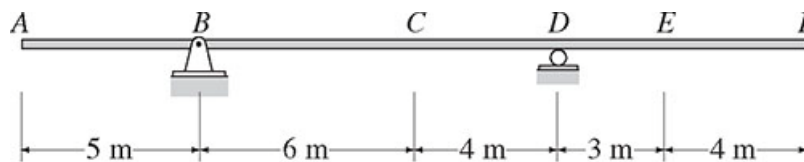
Draw the influence lines for the vertical reaction and the reaction moment at support *A* and the shear and bending moment at point *B* of the beam shown in Figure (1).



**Figure (1)**

**Question 2 (8 Marks)**

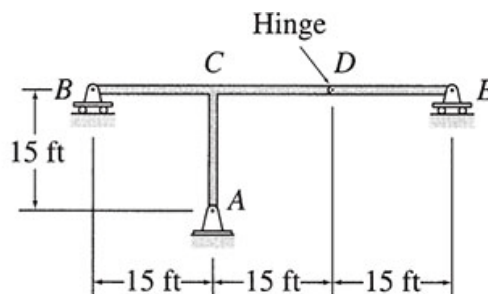
- a) Draw the influence lines for the shear and bending moment at point *C* and the shear just to the left and just to the right of support *D* of the beam shown in Figure (2).



**Figure (2)**

**Question 3 (8 Marks)**

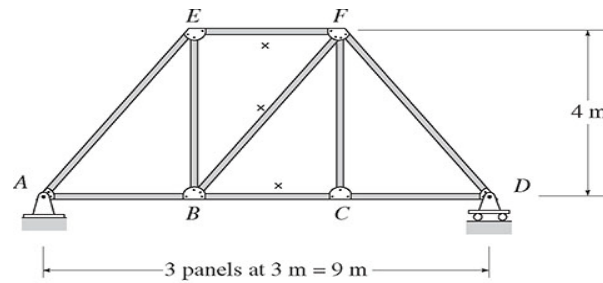
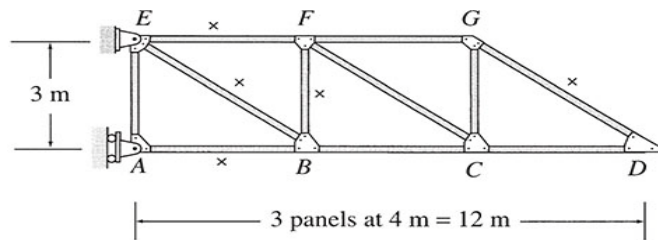
Draw the influence lines for the vertical reaction and the reaction at supports *A*, *B* and *E* the shear at the internal hinge *D* of the frame shown in Figure (3).



**Figure (3)**

**Question 4 (14 Marks)**

Draw the influence lines for the forces in the members identified by an “x” of the two trusses shown in Figures (4a) and (4b). Live loads are transmitted to the bottom chord of the truss.

**Figure (4a)****Figure (4b)****Question 5 (6 Marks)**

For the beam shown in Figure (1), determine the maximum upward vertical reaction and the maximum counterclockwise reaction moment at support A due to a concentrated live load of 100 kN, a uniformly distributed live load of 50 kN/m and a uniformly distributed dead load of 20 kN/m.

**Question 6 (6 Marks)**

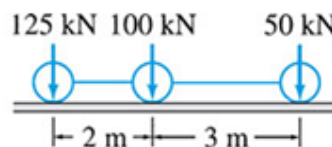
For the beam shown in Figure (2), determine the maximum positive and negative shears and the maximum positive and negative moment at point C due to a concentrated live load of 150 kN, a uniformly distributed live load of 50 kN/m and a uniformly distributed dead load of 25 kN/m.

**Question 7 (6 Marks)**

For the truss shown in Figure (4b), determine the maximum tensile axial force in member BE and the maximum compressive axial force in member BF due to a concentrated live load of 120 kN, a uniformly distributed live load of 40 kN/m and a uniformly distributed dead load of 20 kN/m.

**Question 8 (6 Marks)**

Determine the absolute maximum bending moment in a 15-m-long simply supported beam due to the series of three moving concentrated loads shown in Figure (5).

**Figure (5)**