KING SAUD UNIVERSITY   **STRUCTURAL ANALYSIS : CE 361**
COLLEGE OF ENGINEERING   **FIRST SEMESTER, 1427/1428 H**
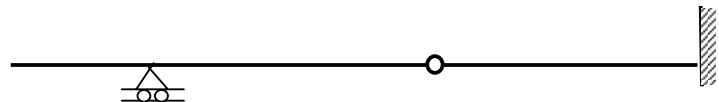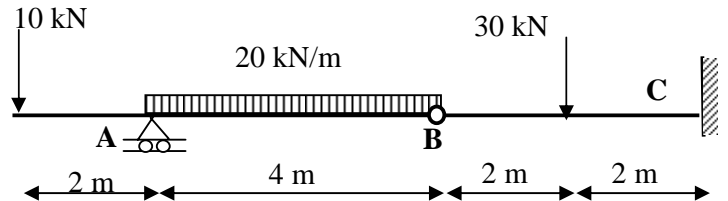**CIVIL ENGINEERING DEPARTMENT**   **TIME : 90 min**

SECOND MID TERM

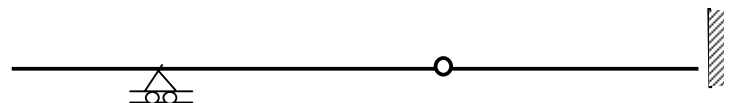**Note: Answer all problem in their provided space, it is recommended to use pencils for the answers**

Problem 1: (10 points)

For the shown loaded beam it is required to;
1- Determine the reactions at supports A & C
2- Check the equilibrium of the beam
3- Draw S.F.D and B.M.D showing all
   necessary values on the diagrams with a
   reasonable scale.
4- Find the maximum positive moment.

10 kN   20 kN/m   30 kN   C
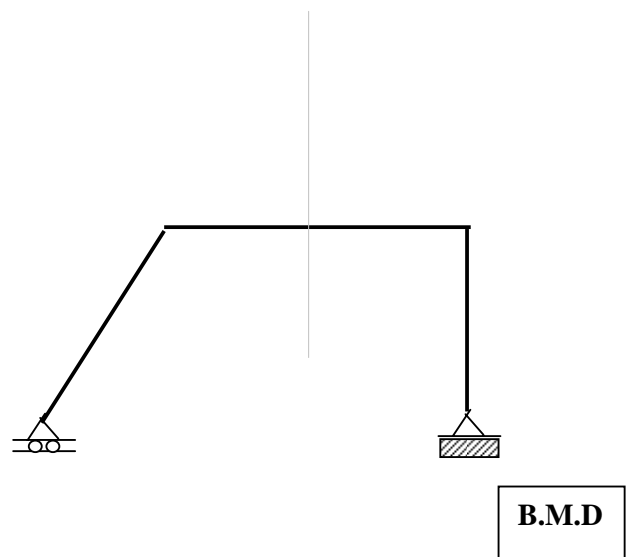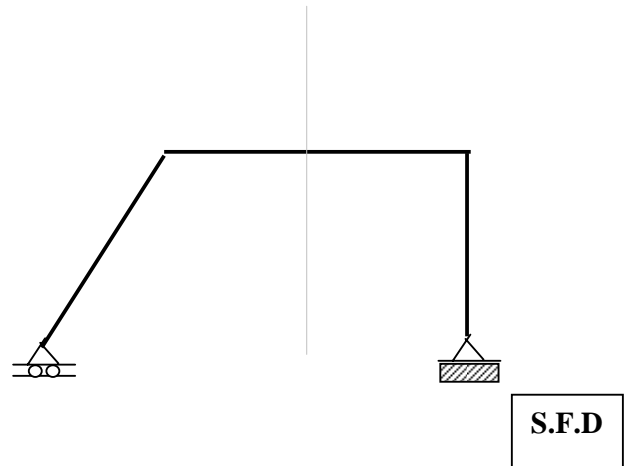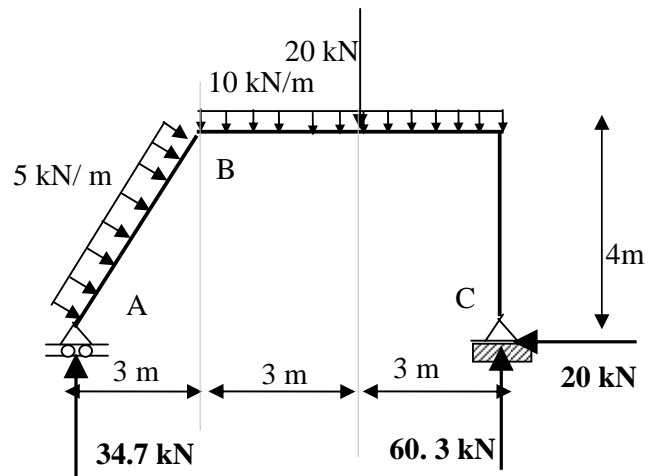
A   B

2 m   4 m   2 m   2 m

S.F.D

B.M.D

Problem 2: (10 points)

For the shown loaded ABC Frame, and given reactions

1- Draw the S.F.D
2- Draw the B.M.D

20 kN

10 kN/m

5 kN/ m

B

4m

A

C

3 m   3 m   3 m

20 kN

34.7 kN

60. 3 kN

S.F.D

B.M.D

Problem 3: (10 points)

For the shown loaded beam with variable moment of Inertia,
Use the **Moment Area method, or Conjugate Beam Method**
to determine the maximum deflection.

P   P

I   2 I   I

a   a   a