

# اسئلة سنوات

استاتيكا

Statics



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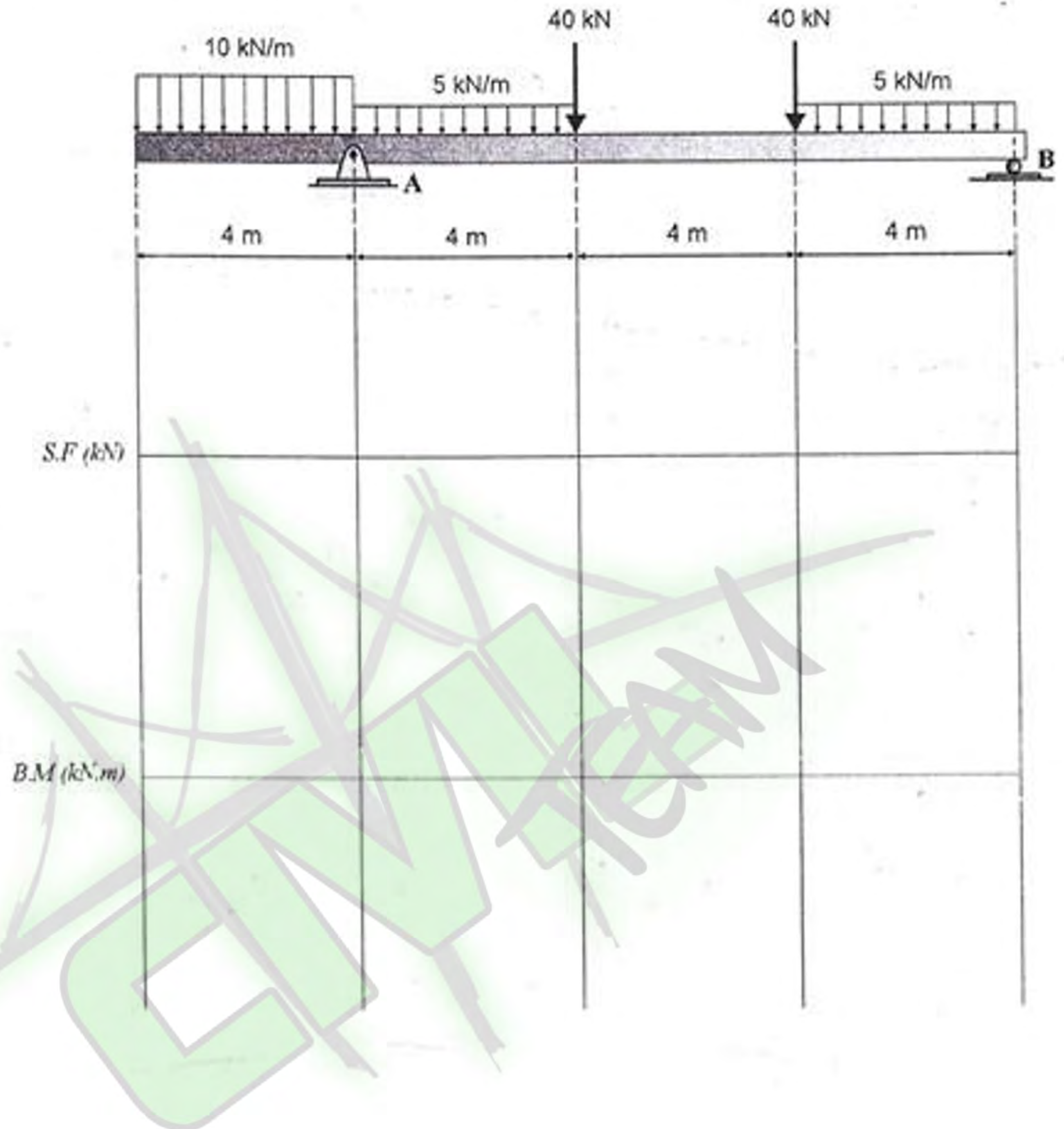


# Al- Balqa' Applied University

Faculty of Engineering Technology

رقم الطالب:	إسم الطالب:
وقت المحاضرات:	مدرس الشعبة:
<b>Time: 100 minutes</b>	<b>Statics</b>
<b>Final exam- First Semester 2012-13</b>	

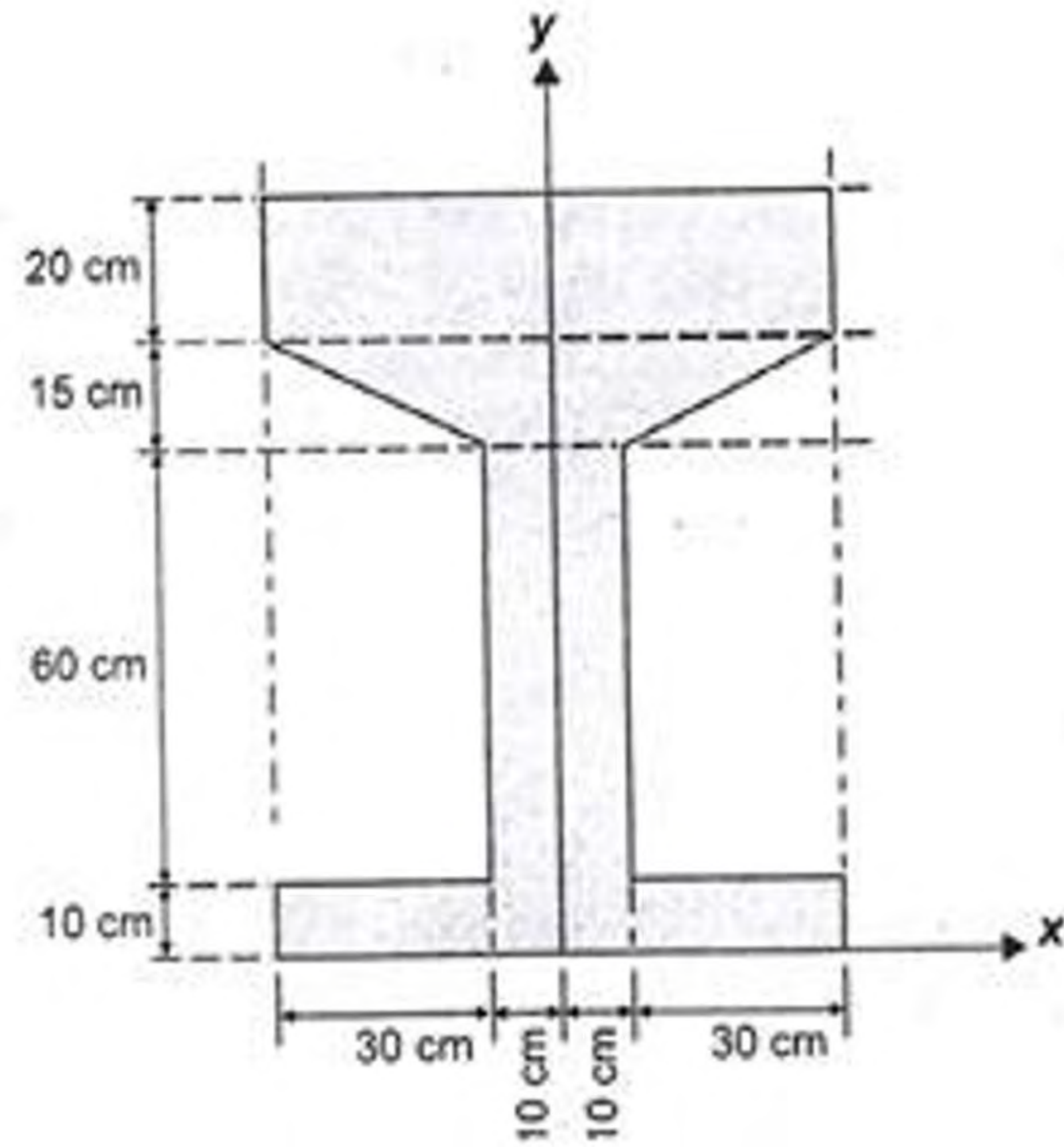
**Q1:** Draw the shear force (S.F) and bending moment (B.M) diagrams. Support A is a hinge and support B is a roller. **(13marks)**



Q2: Given a shaded area as is shown, determine the following:

(12marks)

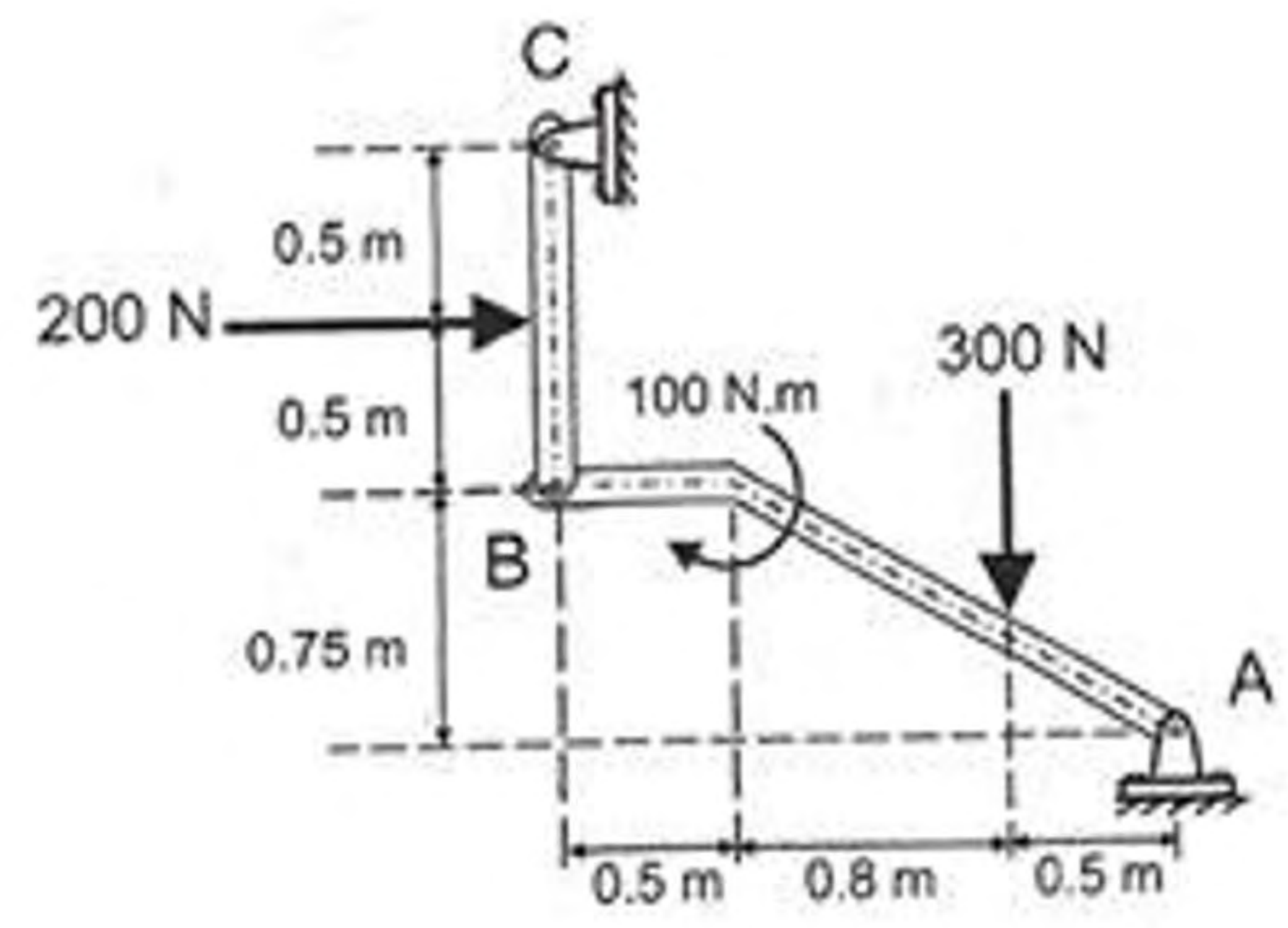
$\bar{Y}$ (cm)	$\bar{I}_x$ (cm <sup>4</sup> )	$\bar{I}_y$ (cm <sup>4</sup> )	$I_x$ (cm <sup>4</sup> )



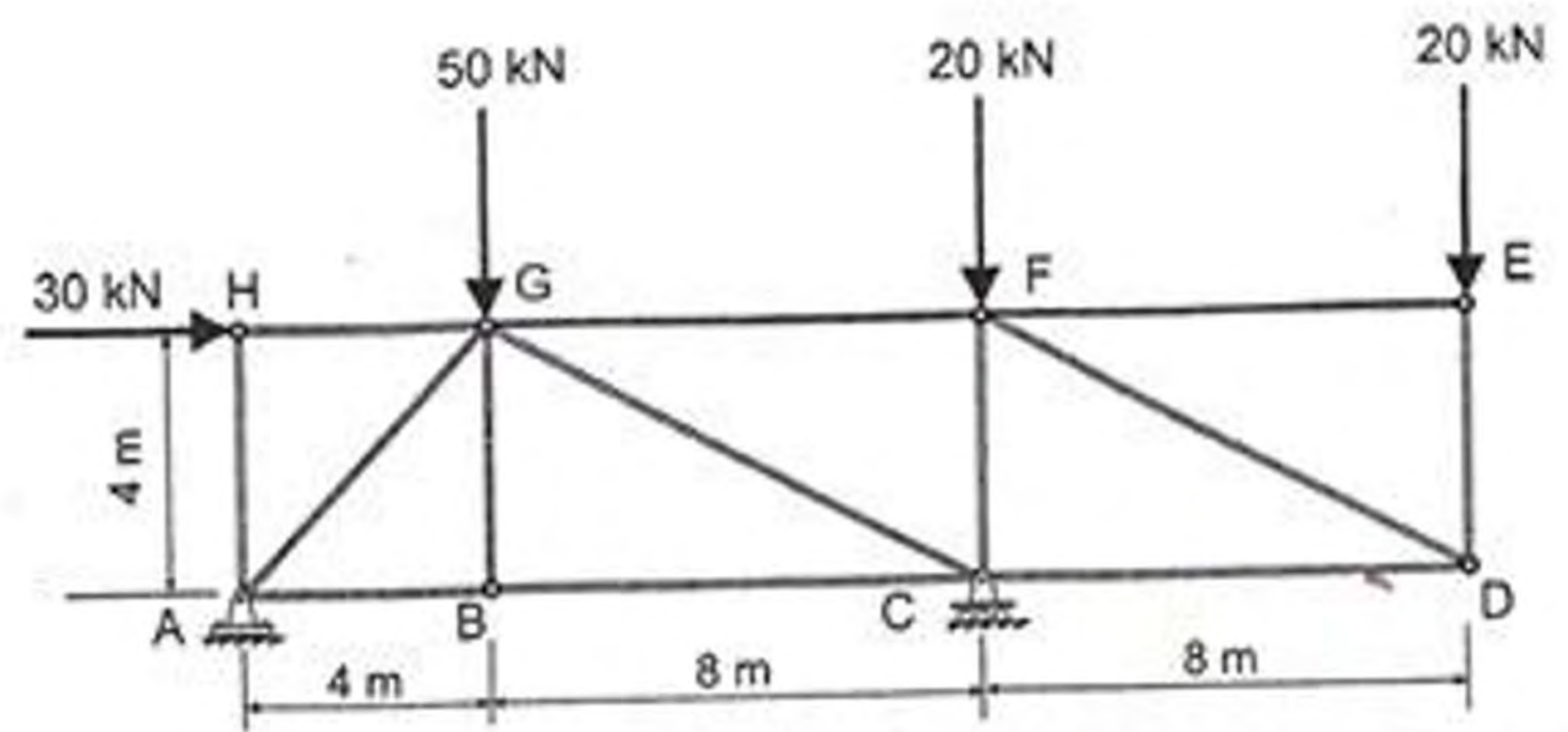
WUOLAH TEAM

**Q4:** The frame is subjected to the shown forces and couple moment. Given that supports A and C are hinges and B is a pin, determine the horizontal and vertical components of reactions at pins A and C. **(12 Marks)**

$A_x$ (N)	$A_y$ (N)	$C_x$ (N)	$C_y$ (N)



**Q3:** For the truss shown, support A is a hinge, support C is a roller. Determine the vertical reaction at A, then determine the internal forces in the members: AB, GF, GC, and specify if tension (T) or compression (C). (13 marks)



The magnitude of internal force in the members are:

$A_y$ (kN)	$F_{AB}$ (kN)	$F_{GF}$ (kN)	$F_{GC}$ (kN)



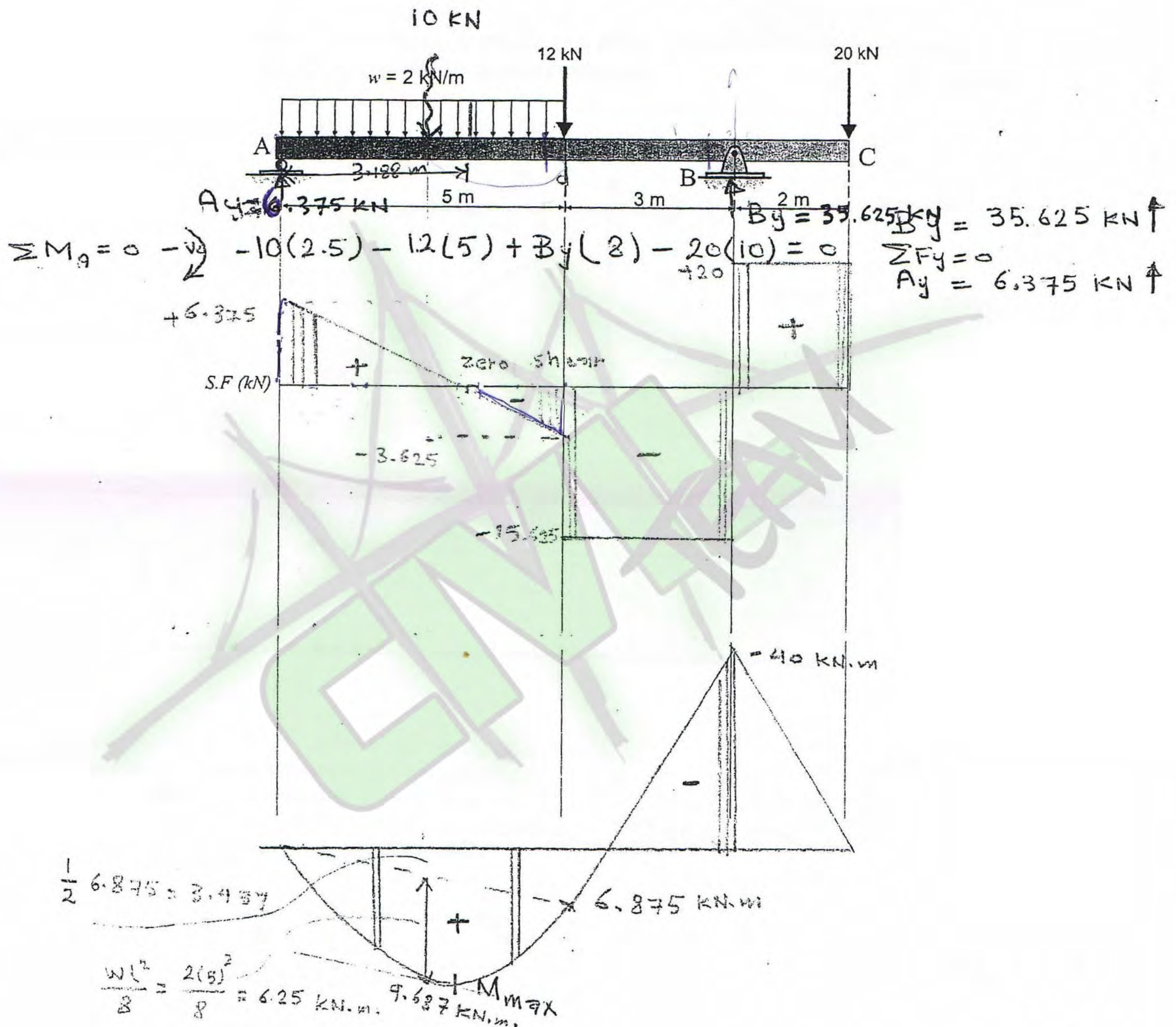
# Al-Balqa' Applied University

Faculty of Engineering Technology

Department Of Civil Engineering

رقم الطالب:	إسم الطالب:
وقت المحاضرات:	مدرس الشعبة:
Time: 2 hours	Statics
	Final exam- First Semester 2011

Q1: Draw the shear force (S.F) and bending moment (B.M) diagrams. Support A is a roller and support B is a hinge. (13marks)



$$\frac{5-x}{6.375} = \frac{x}{3.625}$$

$$x = 1.812 \text{ m}$$

$$5-x = 3.188 \text{ m}$$

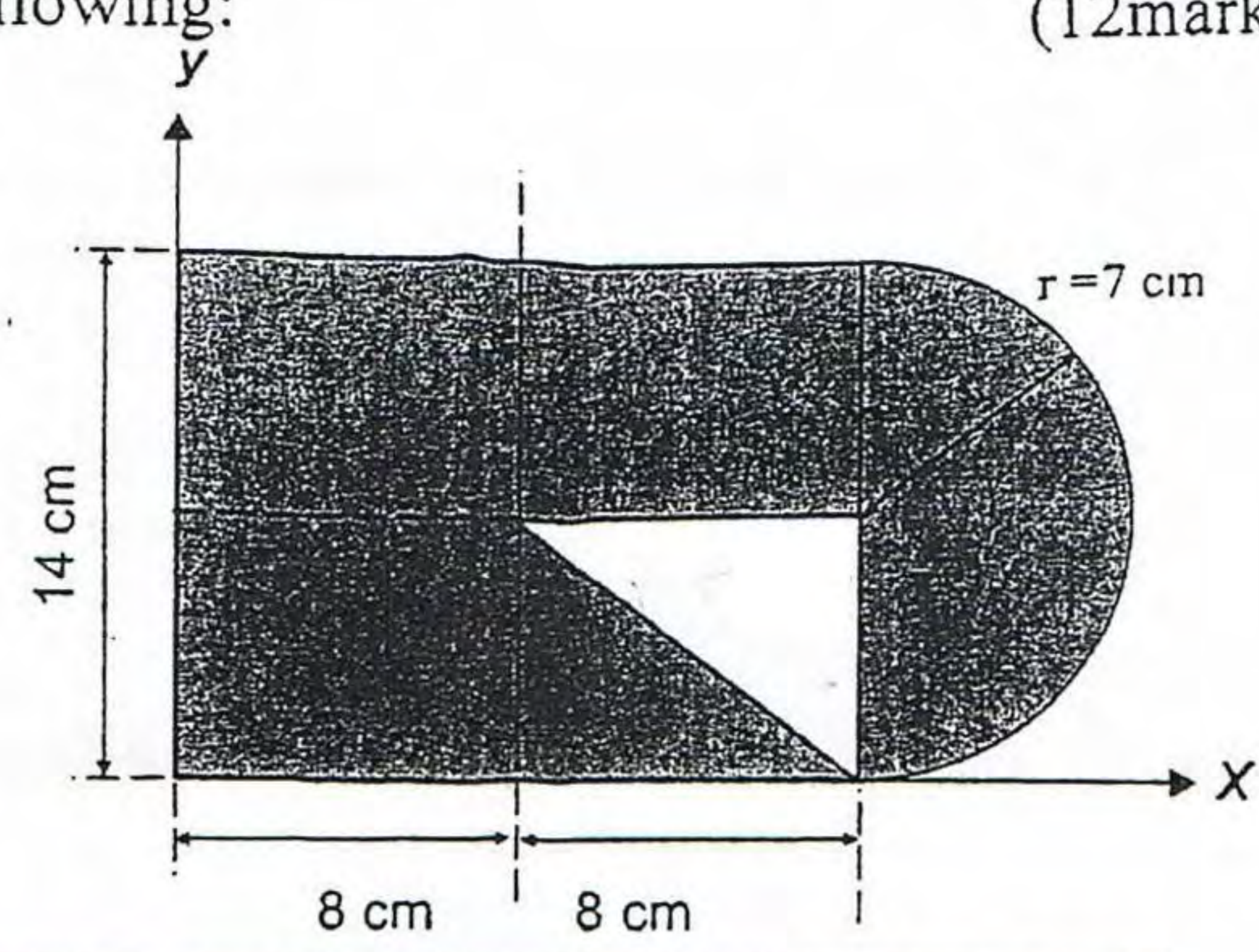
$$M_d = -20(5) + 35.625(3) = -100 + 106.875 = 6.875 \text{ kN.m}$$

$$M_{max} = 6.375(3.188) - \frac{2(3.188)^2}{2} = 10.16 \text{ kN.m}$$

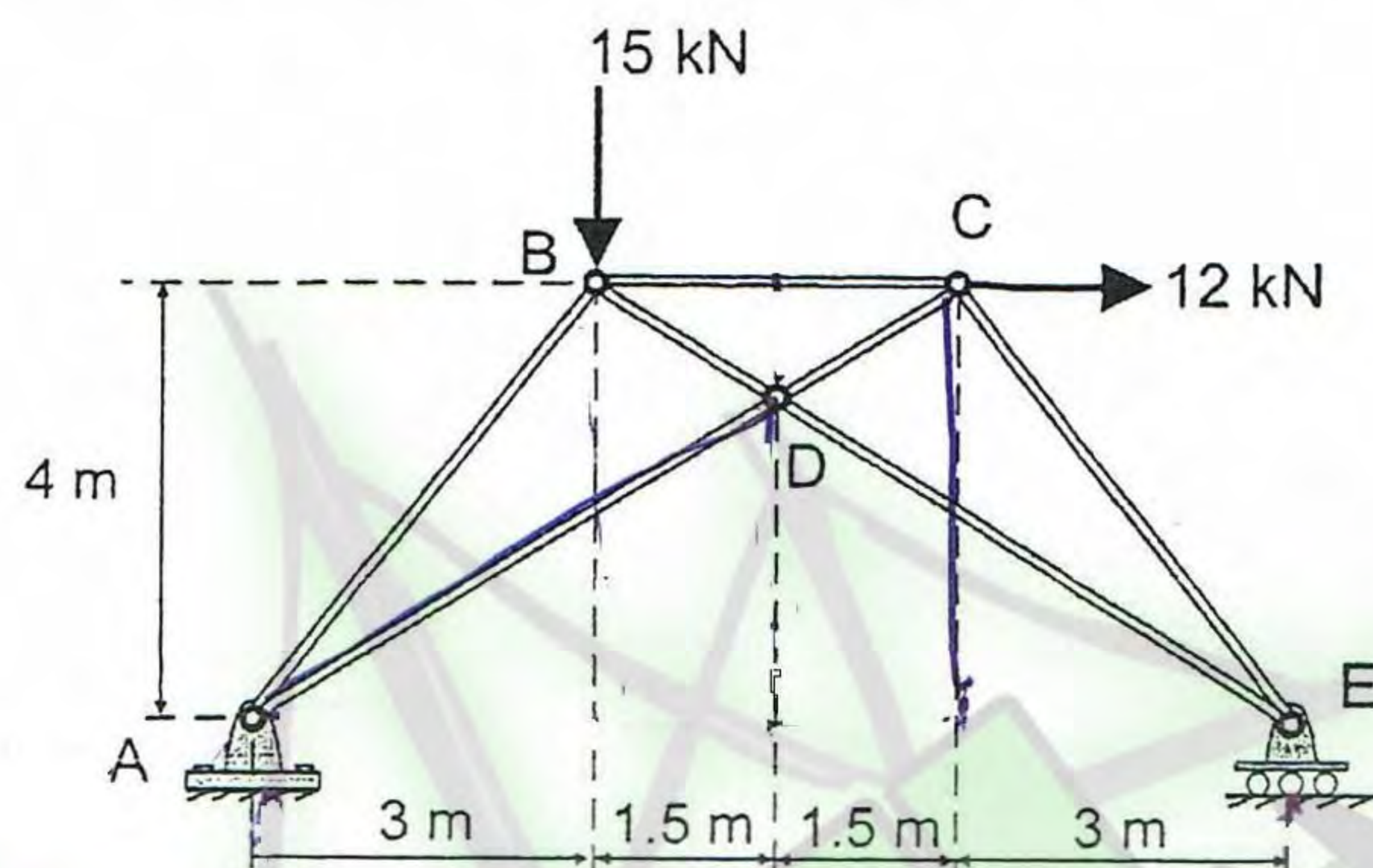
Q2: Given a shaded area as is shown, determine the following:

(12marks)

$\bar{Y}$ (cm)	$I_{\bar{x}}$ (cm <sup>4</sup> )	$I_x$ (cm <sup>4</sup> )



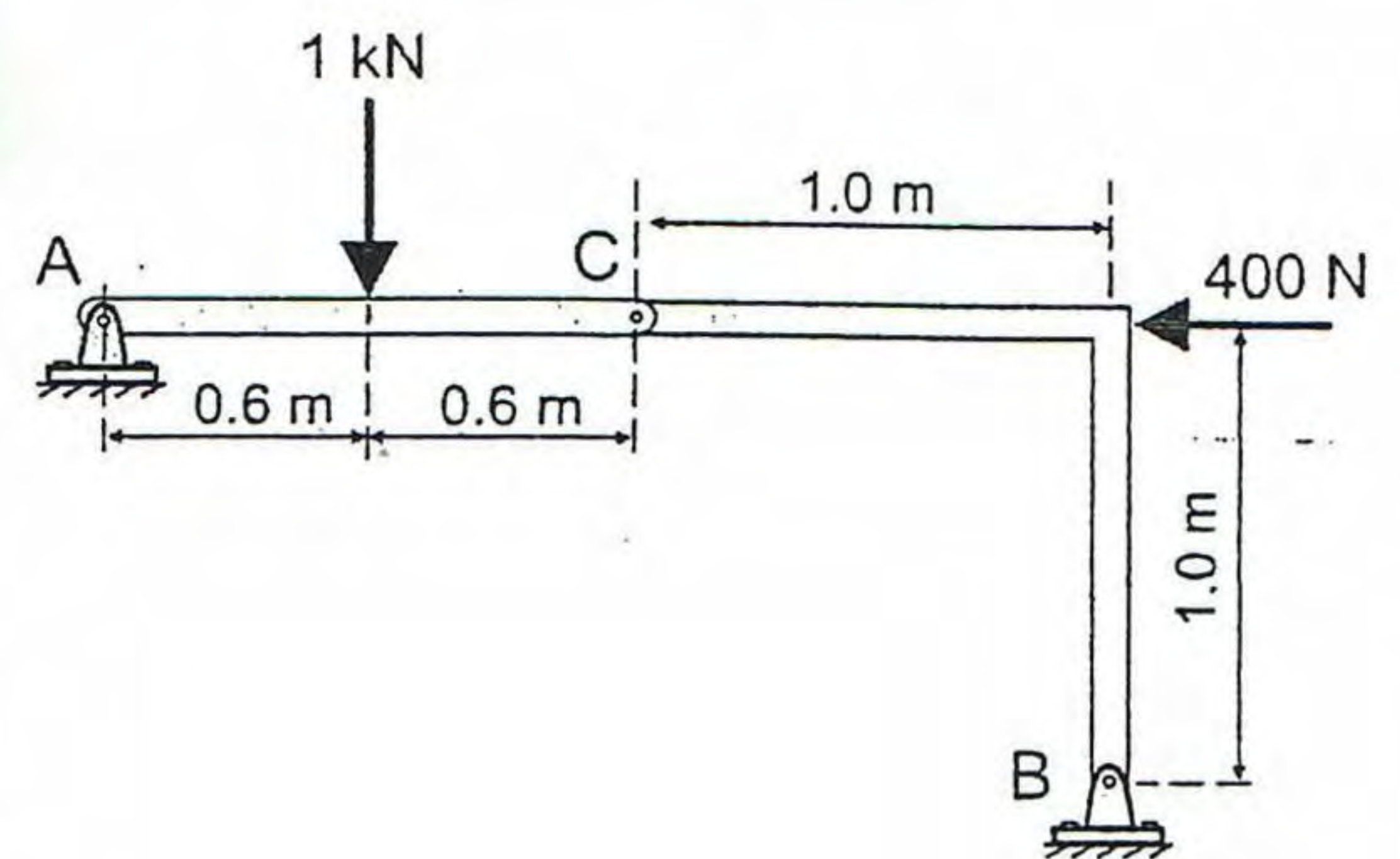
Q3: For the truss shown, support A is a hinge, support E is a roller. Determine the internal forces in the members: AB, BD, BC and specify if tension (T) or compression(C). (13 marks)



The magnitude of internal force in the members

$F_{AB}$ (kN)	$F_{BD}$ (kN)	$F_{BC}$ (kN)

Q4: The frame is subjected to the shown force. Given that supports A and B are hinges and C is a pin, determine the horizontal and vertical components of the internal reaction at pin C, and the reactions  $A_y$  and  $B_x$ . (12 Marks)



$C_x$	$C_y$	$A_y$	$B_x$