إسئلة سابقة ..

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Polytechnic

Al- Balqa' Applied University

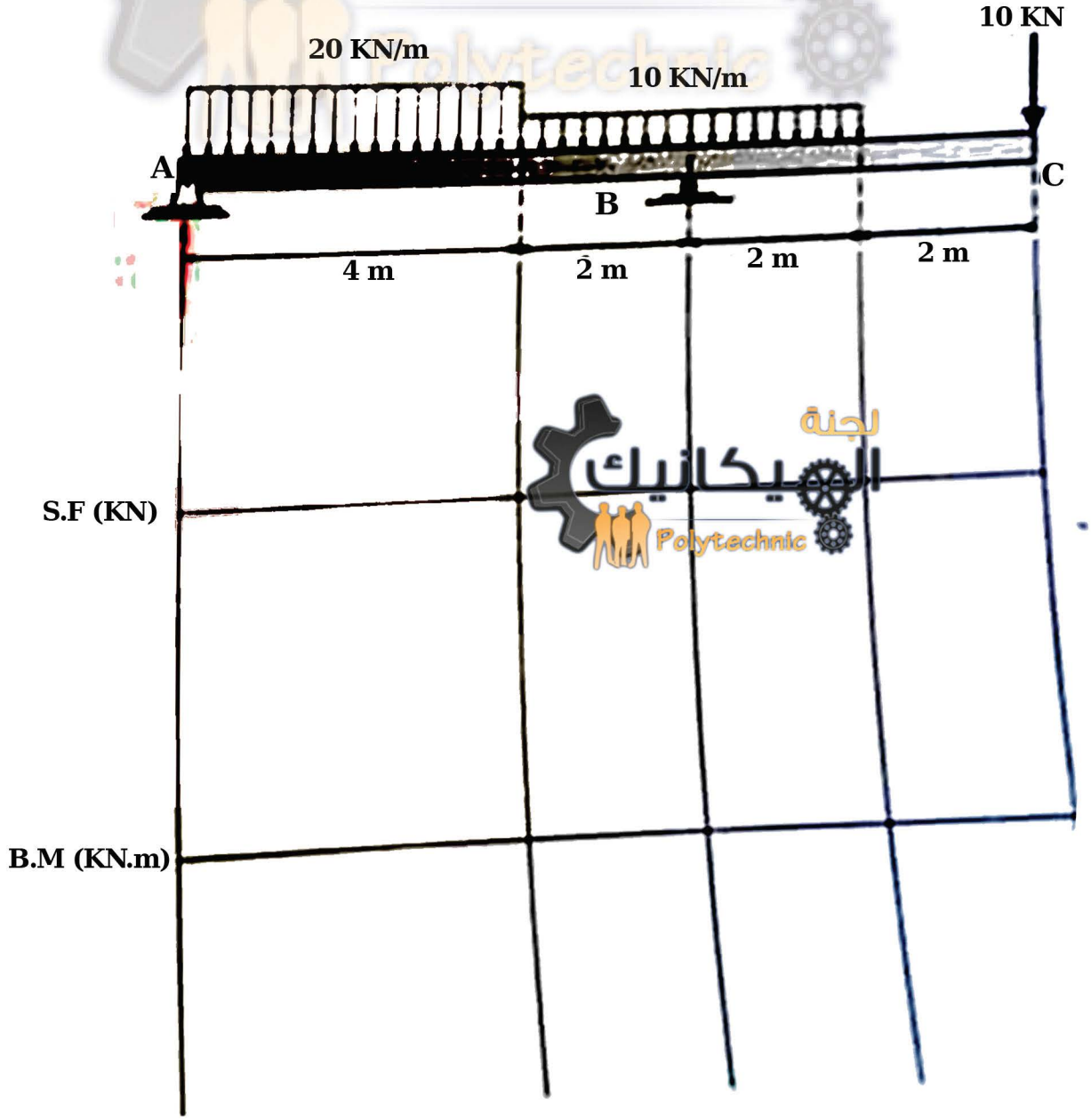
Faculty of Engineering Technology

Department Of Civil Engineering

رقم الطالب:	اسم الطالب:
رقم الطاولة:	صفوف الشعبة:

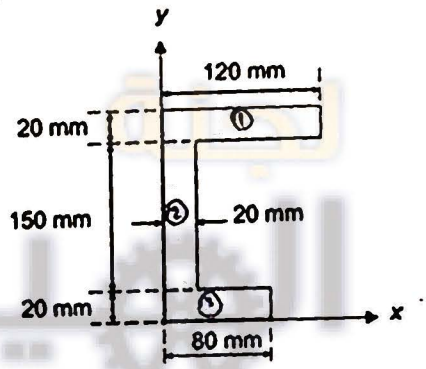
: 100 minutes **Statics** Final exam- First Semester 2015-16

Draw the shear Force (S.F) and Bending moment (B.M) diagram. Support A is a hinger and B is a roller. (13marks)

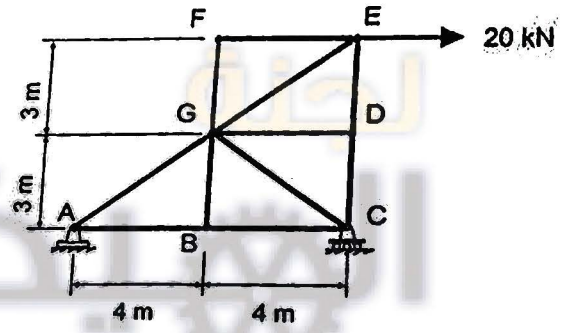


Q2- Given a shaded area is shown, determine the following: (12marks)

$\bar{y}$ (mm)	$I_{\bar{x}}$ (mm⁴)	I_x (mm⁴)

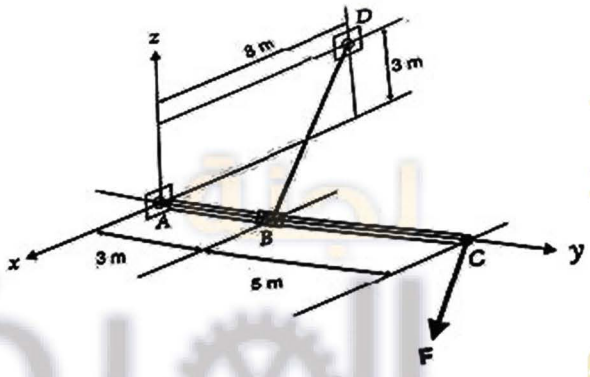


Q3- For the truss shown, support A is a hinge, and support C is a roller. Determine the internal force in the member: AG, AB, GB, and ED. Specify if tension (T) or compression (C). (12 marks)



F_{AG} (kN)	F_{AB} (kN)	F_{GB} (kN)	F_{EG} (kN)	F_{ED} (kN)

Q4- Boom ABC is supported by the ball and socket support at A, and cable **BD**. Force $\mathbf{F} = (54\,\underline{i} - 20.25\,\underline{k})$ kN, is acting at end C. Determine the tension in cable **BD** and reactions at the support A (ignore the weight of the boom). (13 marks)



2.1- T_{BD} .....

2.2- A_x .....

2.3- A_y .....

2.3- A_z .....

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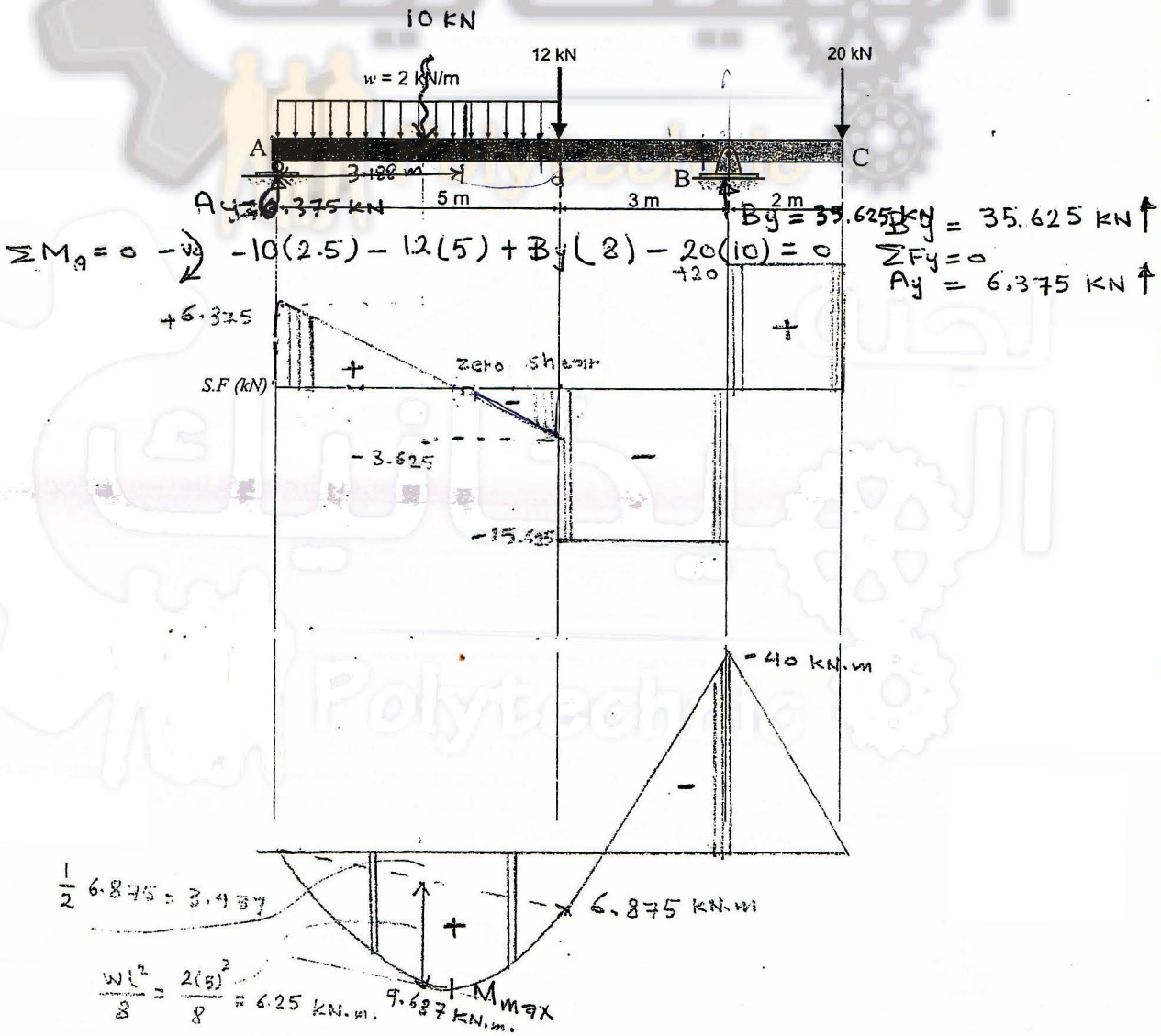
إسم الطالب:	رقم الطالب:
مدرس الشعبة:	وقت المحاضرات:

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)



$\sum M_A = 0$ (-ve) $\quad -10(2.5) - 12(5) + B_y(8) - 20(10) = 0$

$+420$

$B_y = 35.625$ kN ↑

$\sum F_y = 0$

$A_y = 6.375$ kN ↑

$\frac{1}{2} \times 6.875 \times 3.188 = 10.955$

$\frac{wl^2}{8} = \frac{2(5)^2}{8} = 6.25$ kN.m.

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

$x = 1.812$ m

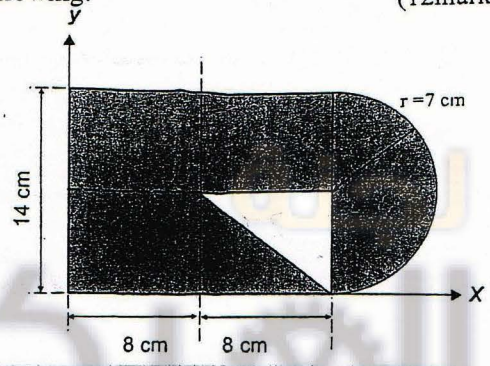
$5 - x = 3.188$ m

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

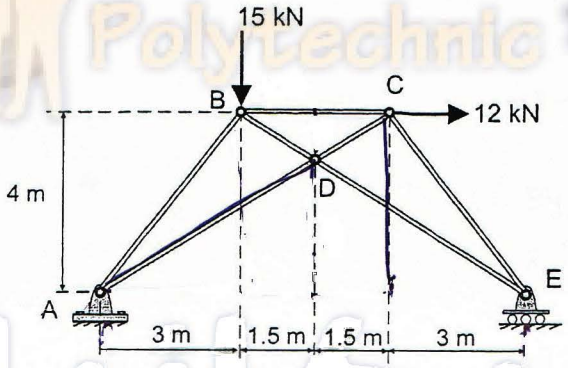
$M_{max} = 6.375(3.188) - 2\frac{(3.188)^2}{2} = 10.16$ kN.m

Q2: Given a shaded area as is shown, determine the following: (12marks)

$\bar{Y}$ (cm)	$I_{\bar{x}}$ (cm^4)	I_x (cm^4)



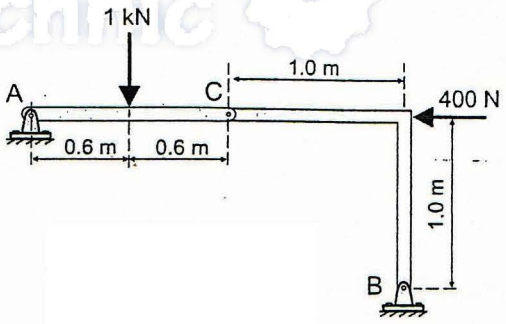
Q3: For the truss shown, support A is a hinge, support E is a roller. Determine the internal forces in the members: **AB**, **BD**, **BC** and specify if tension (T) or compression(C). (13 marks)



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

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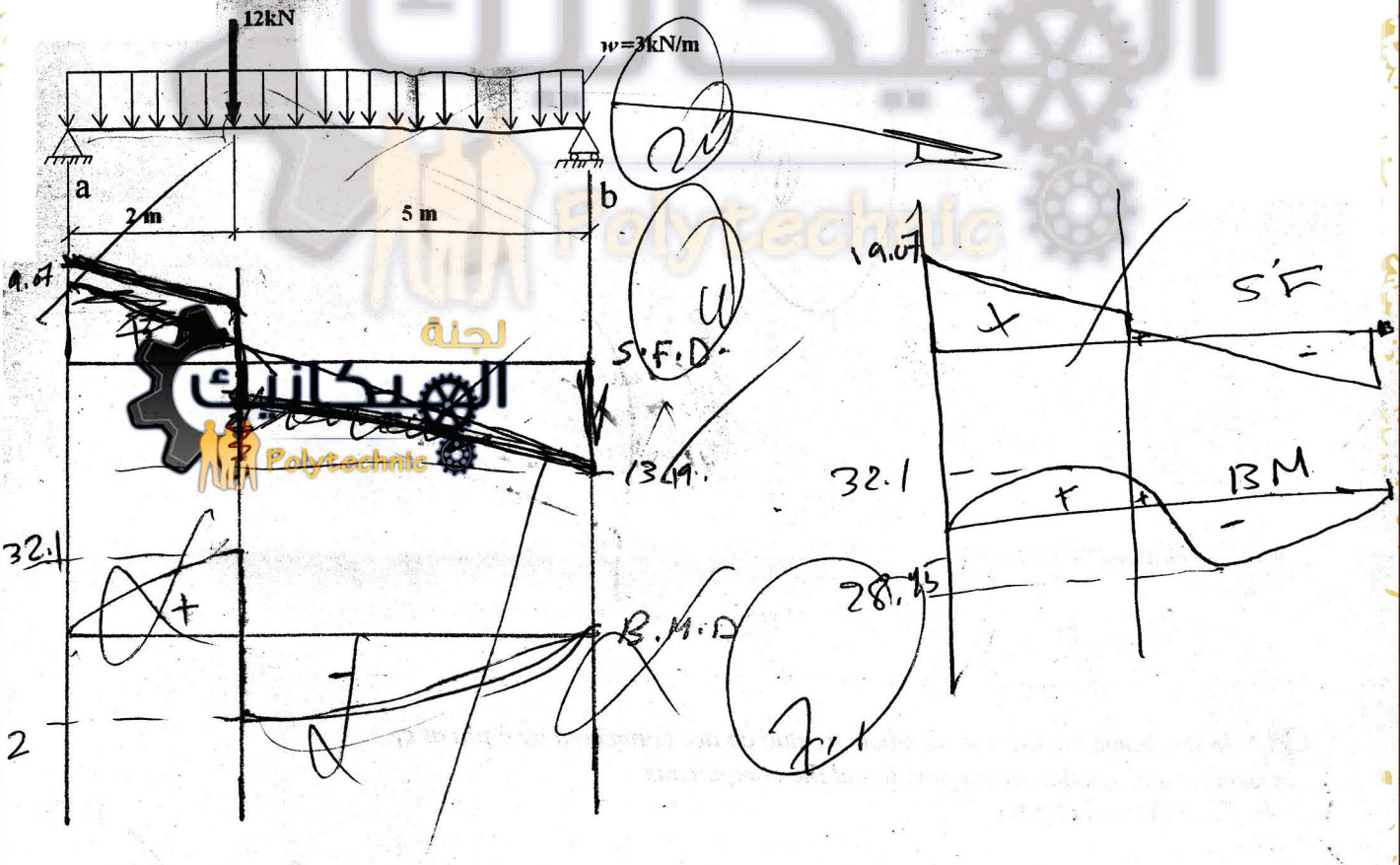
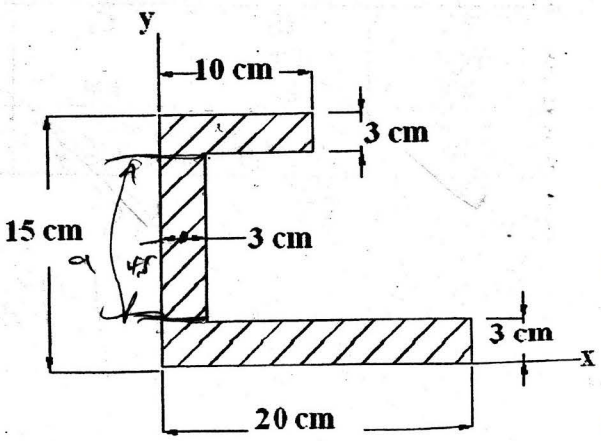
Time: ١٠ minutes	Statics	Final exam 2010
موعد المحاضرة: ١١,١٥ — ١٢,١٥	مدرس الشعبة : د.	الاسم :

Q1: *For the beam shown, plot the shear force (**S.F**) and the bending moment (**B.M**) diagrams*

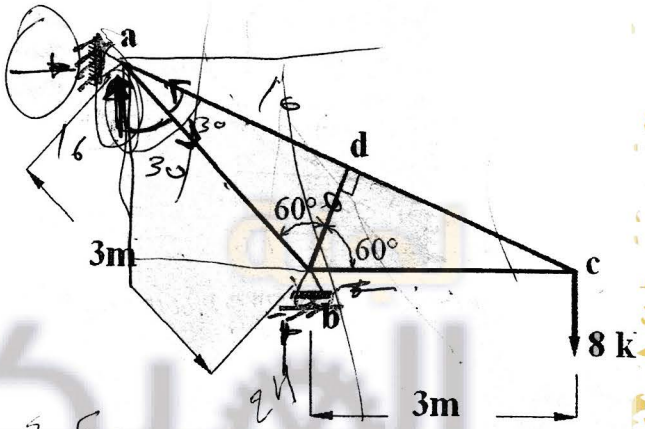


Q2: *Determine the centroidal coordinates $\bar{X}$, $\bar{Y}$ and the moments of inertia $I_{\bar{x}}$ and $I_{\bar{y}}$ for the shaded area shown*



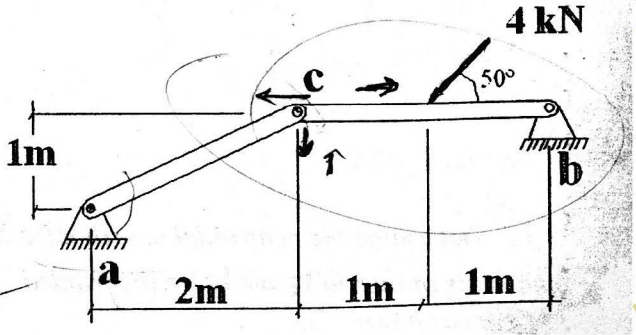
$\bar{X}$ cm	$\bar{Y}$ cm	$I_{\bar{x}}$ cm^4	$I_{\bar{y}}$ cm^4
6.756	6.45	4317.75	3746.7

Q3: *For the truss shown, determine the internal force in the members*



bc kN	bd kN	ab kN	ad kN
13.86	0		

Q4: *In the frame shown, the members* **ac** *and* **cb** *are connected by a pin at* **c**, *, determine the reaction at support* **b** *and the components of the force exerted at pin* **c**.



V_b kN	H_b kN	C_x kN	C_y kN
1.53	0.49	3.06	1.53