اسم الطالب	
الرقم الأكاديمي	
اسم المقرر	نظرية إنشاءات-1
المستوى	الأول
عنوان البحث المرجعي	التحليل الإنشائي للمنشآت المحددة استاتيكيا

رقم السؤال	الدرجة	التوقيع
السؤال الأول		
السؤال الثاني		
السؤال الثالث		
السؤال الرابع		
السؤال الخامس		
السؤال السادس		
المجموع		

توقيع لجنة الامتحان

أ. د./ محمد عبد الباسط عبده mohd.abdo2002@gmail.com
+ اللجنة

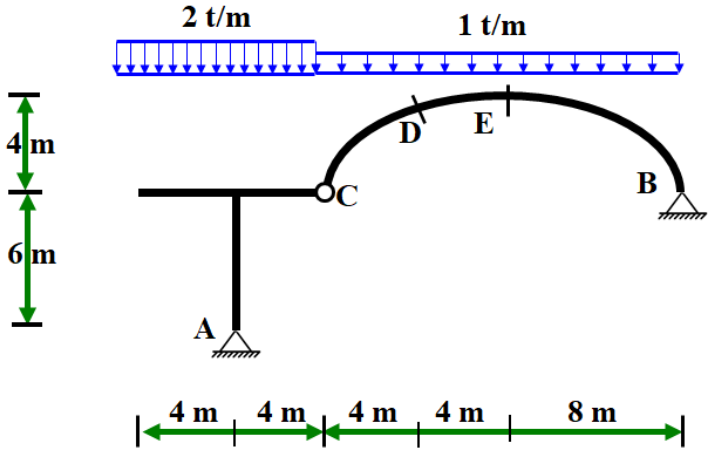
Important remarks
- **This exam measures ILOs no.: (a5, b16, c2, c7)**
- **No. of pages: 10 - No. of questions: 6 (Answer is in the same sheets)**

Question no. 1 (20 points)

For the shown structure, if $y = -0.0625x^2+x$ for the arch, it is required to:

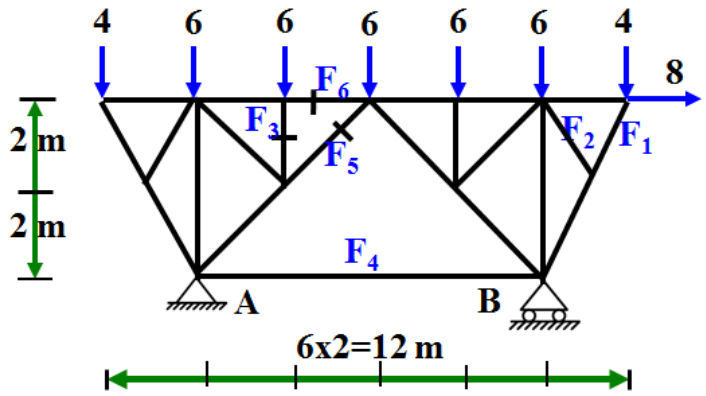
a) calculate the N.F., S.F. and B.M. at sections D&E. (10 points).

b) draw the B.M.D. for the structure. (10 points).



Question no. 2 (15 points)

Find analytically the forces in the marked members: F_1 to F_6. The applied loads are in tons.

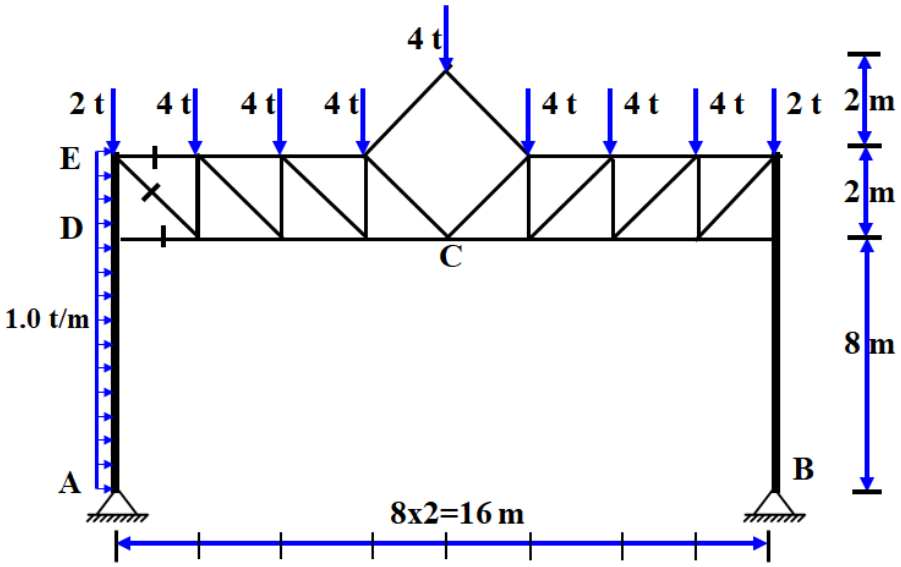


Question no. 3 (25 points)

For the shown structure, estimate the following:

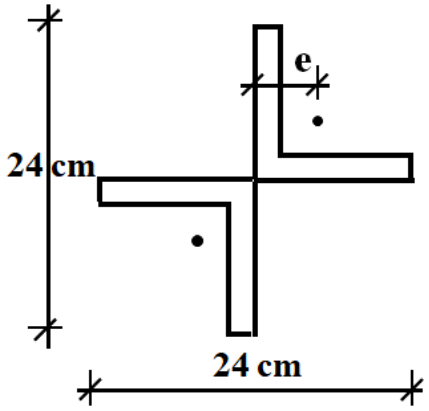
a) forces in the marked members. (15 points).

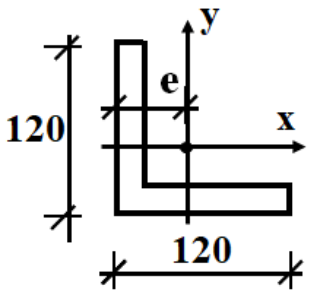
b) N.F., S.F. and B.M.Ds. of column ADE. (10 points).



Question no. 4 **(15 points)**

For the shown C.S. composed of two equal angles <u>120x120x12mm</u>, determine the principal moment of inertia and the principal directions. (10 points)
Check the results graphically. <u>(use 1cm to represent 200 cm^4)</u> (5 points)





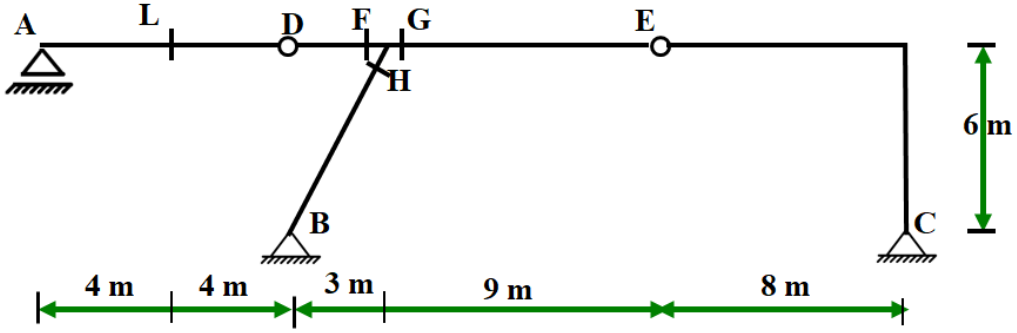
For each angle: $A=27.5cm^2$, $e=3.4cm$.
$I_x=I_y=368cm^4$, $I_{xy}=-185cm^4$

Question no. 5 (15 points)

For the shown bridge; draw:

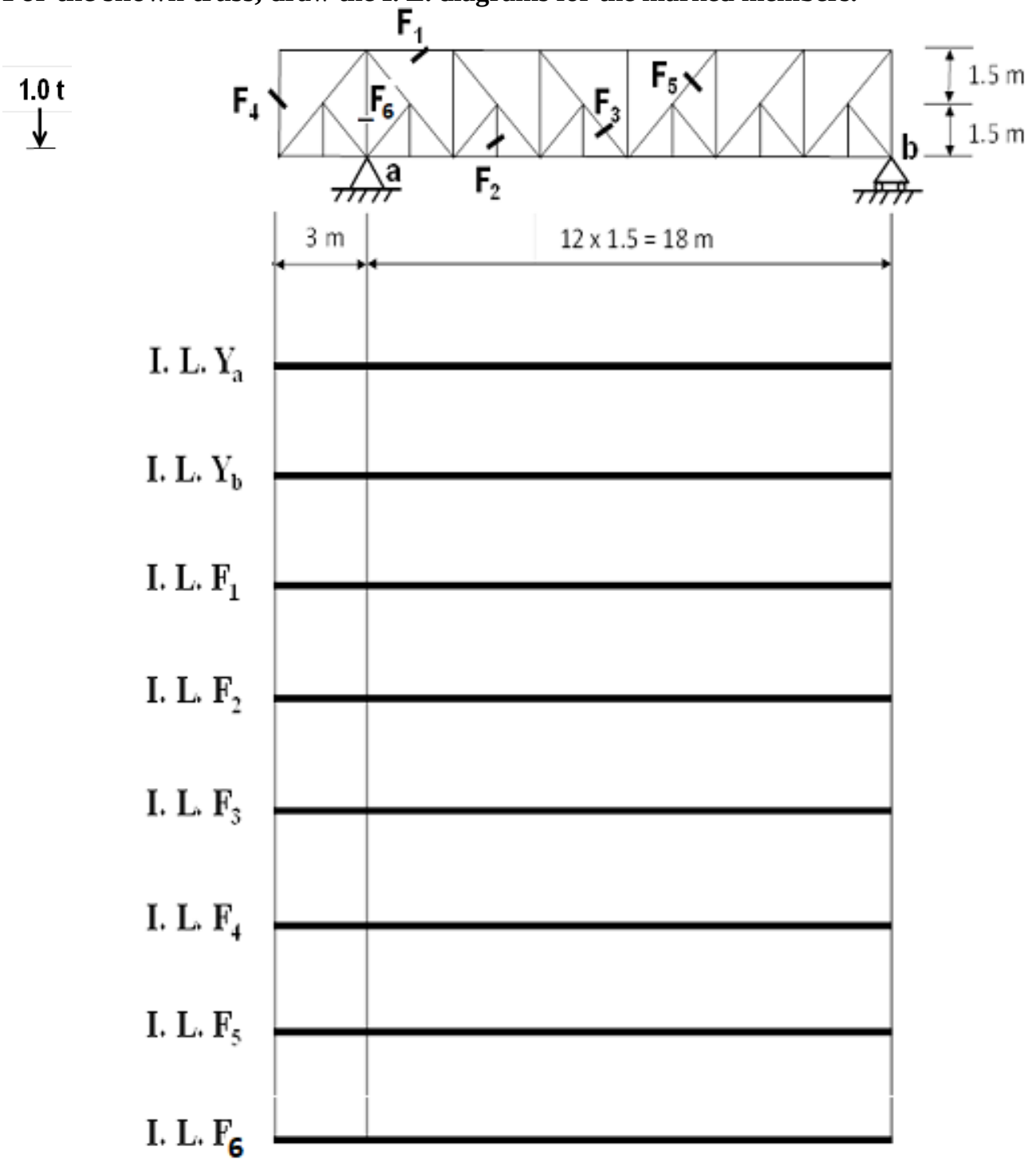
(a) the I. L. diagrams for N.F., S.F., and B.M. at sections F and G. (8 Points)

(b) the I. L. diagrams for B.M. at sections L and H. (7 Points)



Question no. 6 **(10 points)**

For the shown truss, draw the I. L. diagrams for the marked members.



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Prof. **Mohamed A.-B. Abdo +"The committee"**