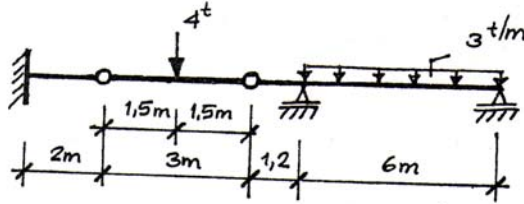


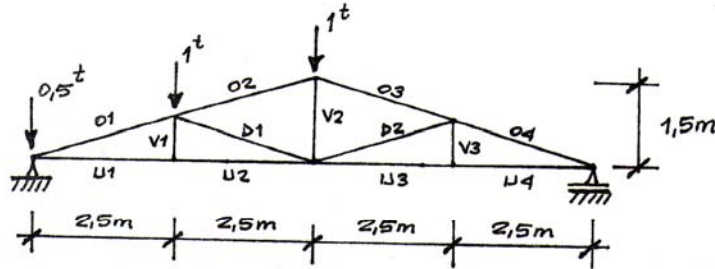
YAPI STATİĞİ YARIYIL İÇİ SINAVI

SORU 1:



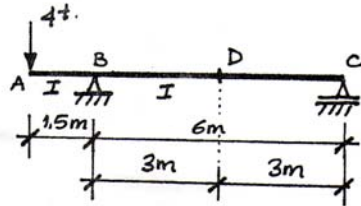
Şekilde ölçüleri ve yükleri verilen sistemde TUM iç kuvvet diyagramlarını çiziniz.

SORU 2:



Şekilde ölçüleri ve yükleri verilen kafes sistemde çubuk kuvvetlerini CREMONA yöntemi ile hesaplayarak, sonuçları bir tabloda özetleyiniz.

SORU 3:

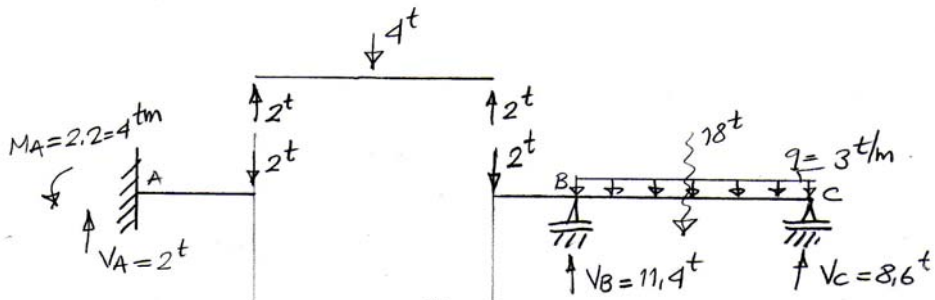
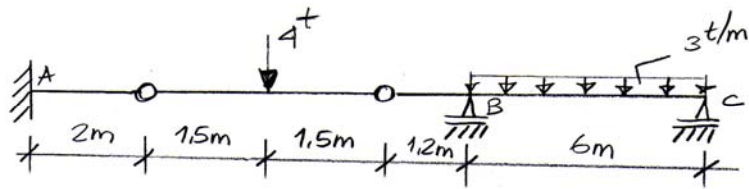


Şekilde verilen sıklmalı kırzde,  
a) C noktasındaki dönme miktarını ( $\theta_c$ ),  
b) D noktasındaki düşey yer değıştirmeyi ( $f_D$ ) hesaplayınız.

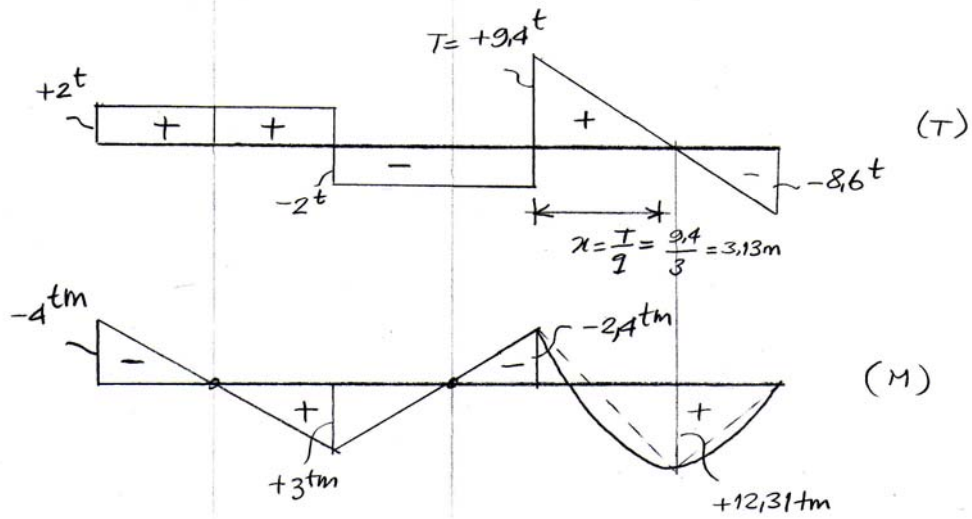
$$EI = 2,06 \cdot 10^{10} \text{ kgcm}^2$$

# CEVAPLAR

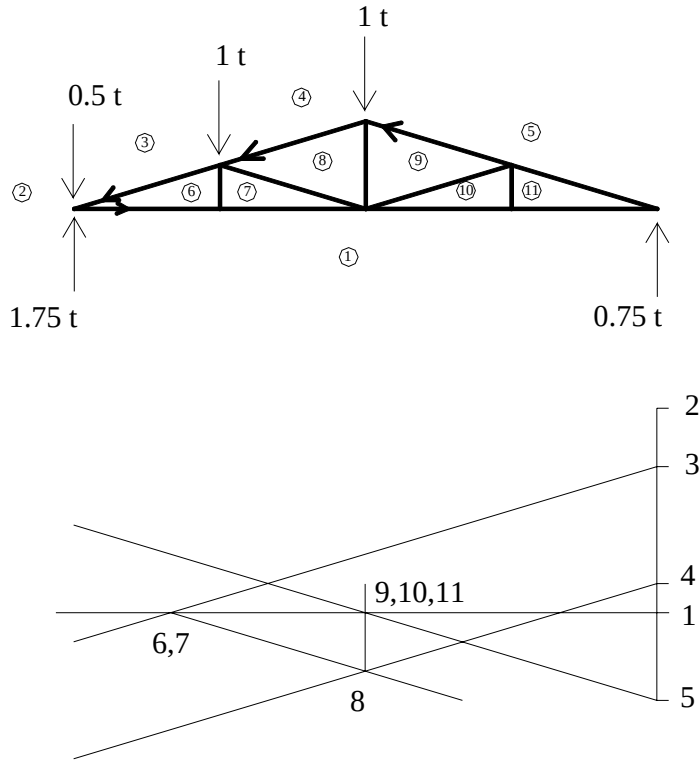
1-)



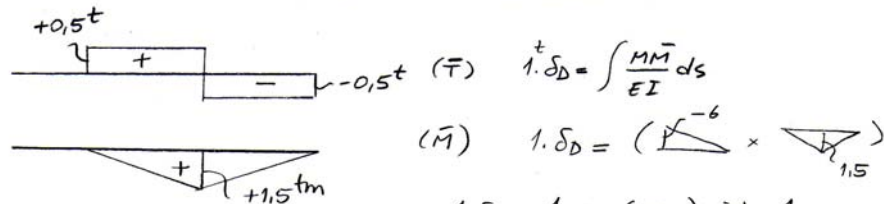
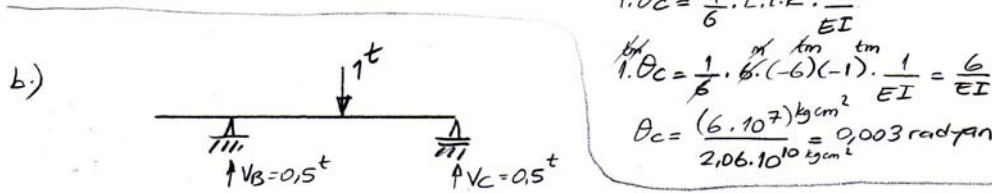
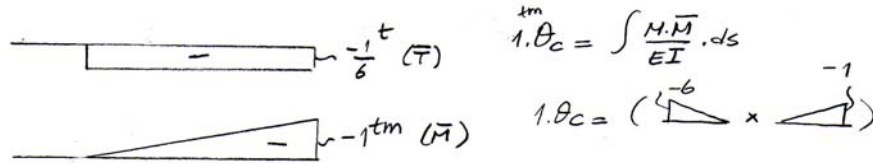
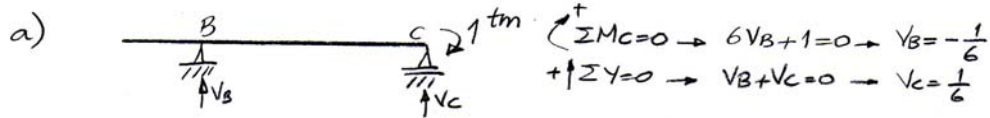
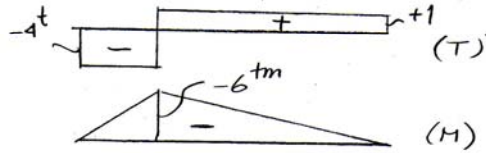
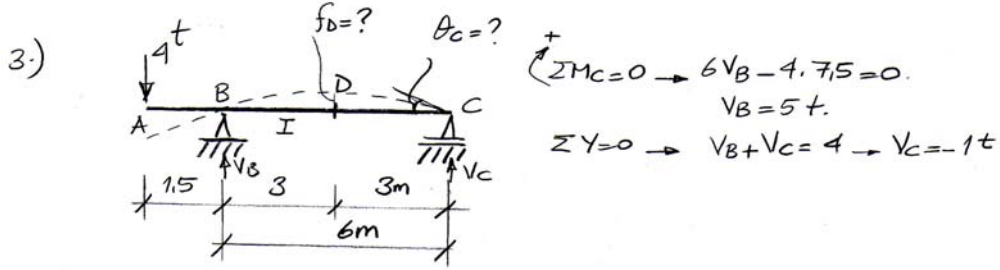
$$\begin{aligned} \sum M_C = 0 &\rightarrow 6V_B - 2 \cdot 7.2 - 18.3 = 0 \rightarrow V_B = 11.4^t \\ \sum Y = 0 &\rightarrow V_B + V_C = 18 + 2 = 20 \rightarrow V_C = 8.6^t \end{aligned}$$



2)



| ÇB | Çekme  | Basınç |
|----|--------|--------|
| U1 | 4.17 t |        |
| U2 | 4.17 t |        |
| U3 | 2.5 t  |        |
| U4 | 2.5 t  |        |
| D1 |        | 1.74 t |
| D2 | 0      |        |
| O1 |        | 4.35 t |
| O2 |        | 2.61 t |
| O3 |        | 2.61 t |
| O4 |        | 2.61 t |
| V1 | 0      |        |
| V2 | 0      |        |



$1. \delta_D = \frac{1}{6} \cdot L \cdot (1 + \alpha) \cdot i \cdot k \cdot \frac{1}{EI}$   
 $1. \delta_D = \frac{1}{6} \cdot 6 \cdot (1 + 0.5) \cdot (-6) \cdot (1.5) \cdot \frac{1}{EI} = -\frac{13.5}{EI}$   
 $\delta_D = -\frac{13.5 \cdot 10^9 \text{ kg cm}^3}{2.06 \cdot 10^{10} \text{ kg cm}^2} = -0.66 \text{ cm}$   
 D noktası yukarı doğru hareket eder