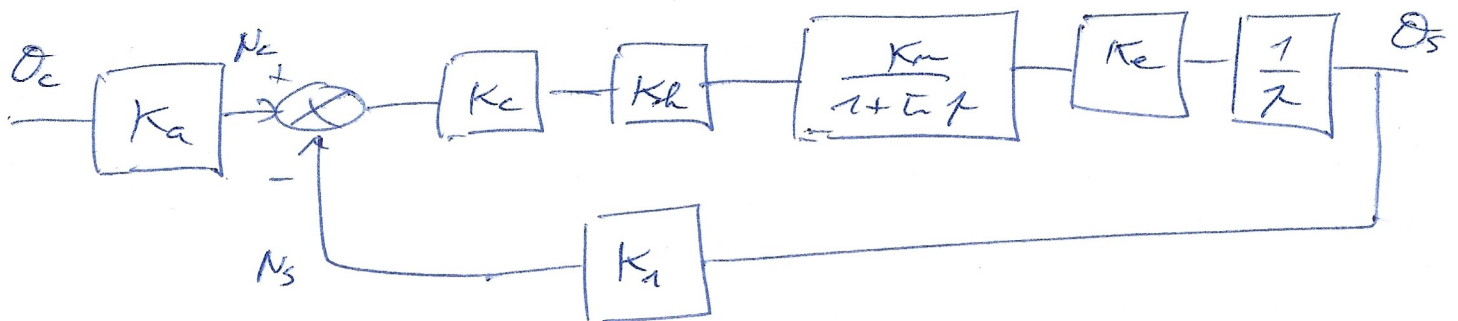
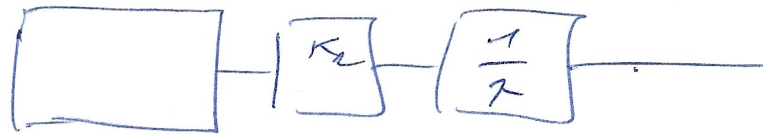


①

TD Schema bloc 2

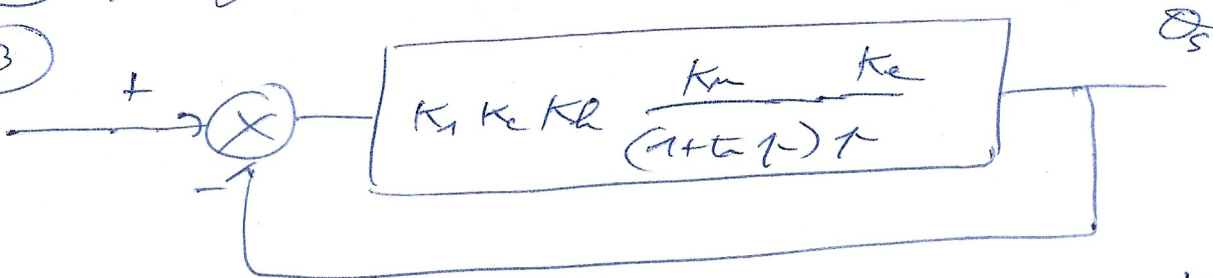
Exo 1

Q1



Q2 Il faut $K_a = K_1$

Q3



Rem : FTBO = $\frac{K_a K_c K_R K_m K_e}{s(1 + T_m s)} = \frac{K_{Bo}}{s(1 + T_m s)}$

(2)

TD Schema 2

Exo 1 Q3 Suite

$$FTBF = \frac{FTB_0}{1 + FTB_0} = \frac{\frac{K_{B_0}}{\tau(1 + \tau)}}{1 + \frac{K_{B_0}}{\tau(1 + \tau)}}$$

$$FTBF = \frac{K_{B_0}}{\tau(1 + \tau) + K_{B_0}}$$

Forme canonique :

$$\frac{K}{\frac{\tau^2}{\omega_0^2} + \frac{2\zeta}{\omega_0} \tau + 1}$$

$$\Rightarrow FTB_0 = \frac{1}{\frac{\tau_m}{K_{B_0}} \tau^2 + \frac{1}{K_{B_0}} \tau + 1}$$

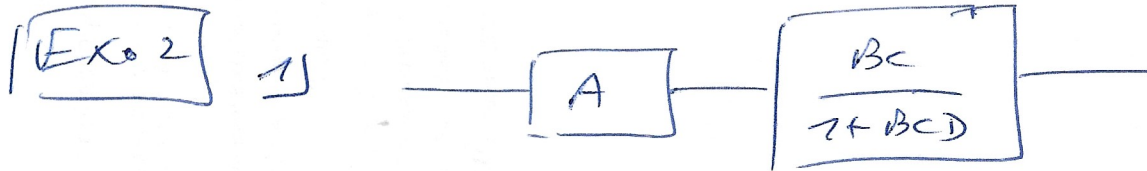
Rem : $K = 1$

$$\omega_0 = \sqrt{\frac{K_{B_0}}{\tau_m}}$$

$$\frac{2\zeta}{\omega_0} = \frac{1}{K_{B_0}} \Rightarrow \zeta = \frac{\omega_0}{2K_{B_0}} = \frac{1}{2\sqrt{K_{B_0}\tau_m}}$$

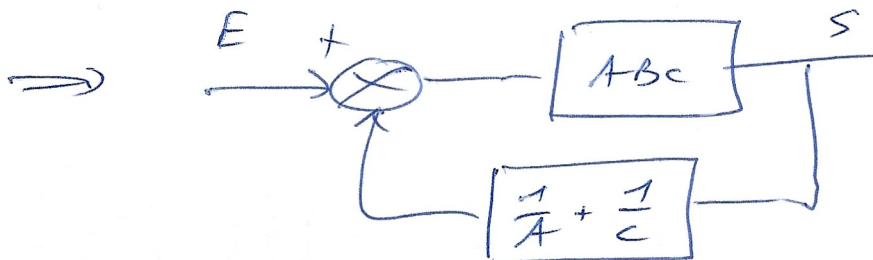
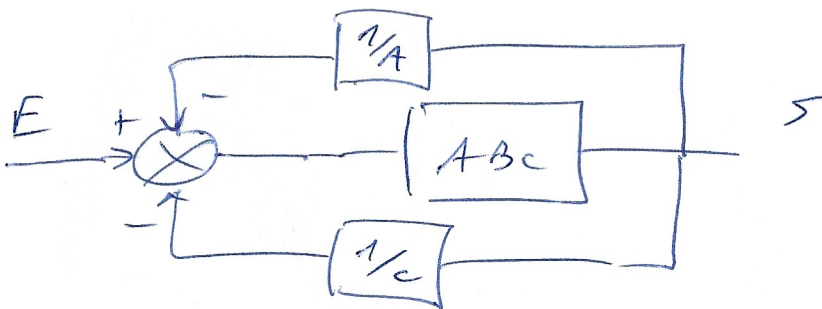
③

TD Schema lba 2



$$\Rightarrow H = \frac{ABc}{1 + BcD}$$

2) Solution lba + rapide.



$$\left(\frac{G}{1+GF} \right)$$

$$\Rightarrow H = \frac{ABc}{1 + ABc \left(\frac{1}{A} + \frac{1}{c} \right)} = \frac{ABc}{1 + Bc + AB}$$

④

Exo 3

$$1) \quad U_c(\tau) = R I(\tau) + L \tau I(\tau) + E(\tau)$$

$$\left| \begin{aligned} I(\tau) &= \frac{U_c(\tau) - E(\tau)}{R + L\tau} = \frac{1}{R + L\tau} [U_c(\tau) - E(\tau)] \\ C_m(\tau) &= k_e I(\tau) \Rightarrow H_1 \text{ et } B_5 \end{aligned} \right.$$

$$E(\tau) = k_e \Omega_m(\tau) \Rightarrow B_6 =$$

$$2) \quad J \tau^2 \alpha(\tau) - m g Z \alpha(\tau) = m Z \Gamma(\tau) + \frac{C_m(\tau)}{\lambda}$$

$$\alpha(\tau) = \frac{1}{J \tau^2} \left[m Z \Gamma(\tau) + m g Z \alpha(\tau) + \frac{C_m(\tau)}{\lambda} \right]$$

$$\Rightarrow B_7 = \frac{1}{J} \quad B_1 = m Z \quad B_2 = m g Z$$

$$B_3 = \frac{1}{\lambda} \quad B_5 =$$

$$\underline{P_{em}} : \quad \Omega_m(\tau) = \frac{1}{\lambda} \tau \alpha(\tau) \Rightarrow B_4 = \frac{1}{\lambda}$$