Control Automático
EM-720

Tarea #5

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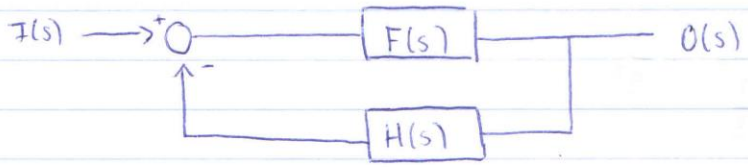
(6pm - 9pm)

Segundo Cuatrimestre 2018

Tarea # 5, Sistema retroalimentado



$F(s) = 1/s$ ^ $H(s) = 1$

a) Error para impulso, $I(s) = 1$

$$E(s) = s \cdot \frac{1}{1 + 1 \cdot \frac{1}{s}} \cdot 1$$

$$\lim_{s \to 0} = \frac{s}{\frac{s+1}{s}}$$

$$\lim_{s \to 0} = \frac{s^2}{s+1}$$

$$= 0$$

b) Error para escalon, $I(s) = 1/s$

$$E(s) = s \cdot \frac{1}{1 + 1 \cdot 1/s} \cdot \frac{1}{s}$$

$$\lim_{s \to 0} = \frac{s}{s+1}$$

$$= 0$$

$$\lim_{s \to 0} = \frac{1}{\frac{s+1}{s}}$$

c) Error para rampa, $I(s) = 1/s^2$

$$E(s) = s \cdot \frac{1}{1 + 1 \cdot \frac{1}{s}} \cdot \frac{1}{s^2}$$

$$\lim_{s \to 0} \left(\frac{\frac{s}{s^2}}{\frac{s+1}{s}} \right)$$

$$\lim_{s \to 0} = \frac{s}{s(s+1)}$$

$$\lim_{s \to 0} = \frac{s}{s^2 + s}$$

$$= 0$$