

## Tarea Instrumentación: Funciones de Transferencia Sist L.C.

1- Cuando  $B(s)$  y  $B(s)$   
 $(-)$   $(-)$

Sust ② en ③

$$C(s) = G(s) E(s) \quad (1)$$

$$E(s) = -R(s) - (H(s) C(s)) \quad (4)$$

$$B(s) = H(s) C(s) \quad (2)$$

↓  
Sust ④ en ①

$$E(s) = -R(s) - B(s) \quad (3)$$

$$C(s) = G(s) (-R(s) - (H(s) C(s)))$$

$$C(s) = -G(s) R(s) - G(s) H(s) C(s)$$

$$C(s) + G(s) H(s) C(s) = -G(s) R(s)$$

$$C(s) (1 + G(s) H(s)) = -G(s) R(s)$$

$$\frac{C(s)}{R(s)} = - \frac{G(s)}{1 + G(s) H(s)}$$

F.T

2- Cuando  $R(s)$  y  $B(s)$   
 $(+)$   $(+)$

Sust ② en ③

$$C(s) = G(s) E(s) \quad (1)$$

$$E(s) = R(s) + (H(s) C(s)) \quad (4)$$

$$B(s) = H(s) C(s) \quad (2)$$

↓  
Sust ④ en ①

$$E(s) = R(s) + B(s) \quad (3)$$

$$C(s) = G(s) (R(s) + H(s) C(s))$$

$$C(s) = G(s) R(s) + G(s) H(s) C(s)$$

$$C(s) - G(s) H(s) C(s) = G(s) R(s)$$

$$C(s) (1 - G(s) H(s))$$

$$\frac{C(s)}{R(s)} = \frac{G(s)}{1 - G(s) H(s)}$$

F.T



3- Cuando  $R(s)$  y  $B(s)$   
(-) (+)

Sustituyendo ② en ③

$$C(s) = G(s) E(s) \quad ①$$

$$E(s) = -R(s) + H(s) C(s)$$

$$B(s) = H(s) C(s) \quad ②$$

Sustituyendo ④ en ①

$$E(s) = -R(s) + B(s) \quad ③$$

$$C(s) = G(s) (-R(s) + H(s) C(s))$$

$$C(s) = -G(s) R(s) + G(s) H(s) C(s)$$

$$C(s) - G(s) H(s) C(s) = -G(s) R(s)$$

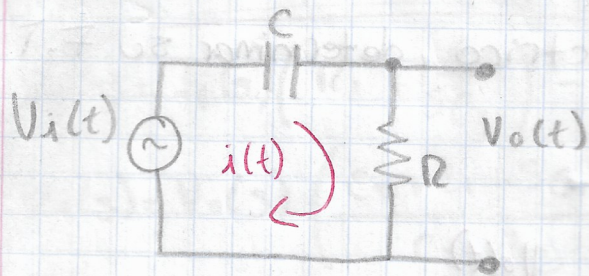
$$\frac{C(s)}{R(s)} = \frac{G(s)}{1 - G(s) H(s)}$$

T.F.



Tarea.

Función de Transferencia de un circuito (C-R)



$$V_i(t) = \frac{1}{C} \int i(t) dt + R i(t)$$

$$V_o(t) = R i(t)$$

$$V_i(s) = \frac{1}{sC} I(s) + R I(s)$$

$$V_o(s) = R I(s)$$

$$I(s) = \frac{V_o(s)}{R}$$

$$V_i(s) = I(s) \left( \frac{1}{sC} + R \right)$$

$$V_i(s) = \frac{V_o(s)}{R} \left( \frac{1}{sC} + R \right)$$

$$\frac{V_o(s)}{V_i(s)} = \frac{R}{R + \frac{1}{sC}} \quad F.T.$$

$$s = -\frac{1}{RC}$$

$$K = \lim_{s \rightarrow 0} G(s) \approx \text{Indef}$$

$$K = \lim_{s \rightarrow \infty} G(s) \approx 0$$

Orden = Primero

Exactitud = Uno

No. Poles = Uno

No. Ceros = Uno

Filtro Pasa Altas

Estable

