

Computer Engineering

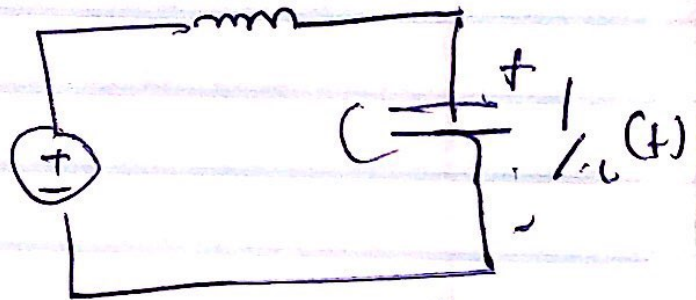
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Current theory assignment.

- A typical resistance is fixed when the ~~spec~~ output of an RC is turned off, i.e. current is slow down.
- ∴ The transfer

$$H(\omega) = V_1/V_2 = 1/R \cdot \omega C / (R + 1/j\omega C)$$

$$H(\omega) = \frac{1}{1 + j\omega RC}$$



$H(0) = 1$ ∴ Hence the circuit is a low pass filter

$$H(\infty) = 0$$

By setting the magnitude of $H(\omega)$ equal to $1/\sqrt{2}$ to obtain ω_c or f_c frequency

$$|H(\omega_c)| = \frac{1}{\sqrt{1 + \omega_c^2 R^2 C^2}} = \frac{1}{\sqrt{2}}$$

$$1 + \omega_c^2 R^2 C^2 = 2 \quad \omega_c R C = 1$$

$$\omega_c R C = 1 \quad \omega_c R C = 1$$

$$\omega_c RC = 1 \quad \omega_c = \frac{1}{RC}$$