

Name:

Key

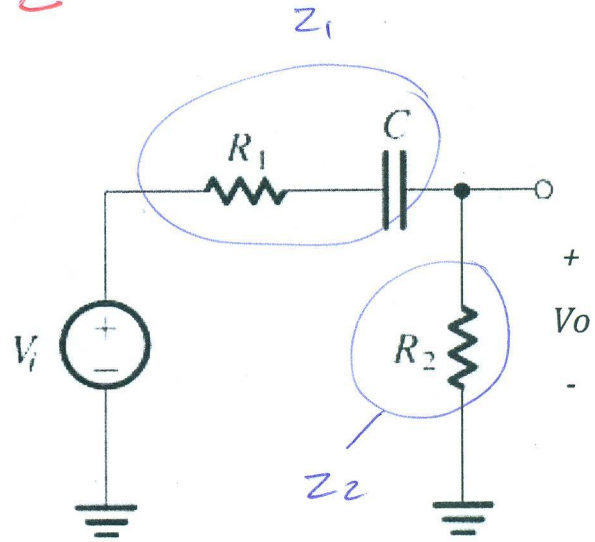
Quiz # 2

ID#

For the circuit shown below,

- Find the transfer function $T(s) = V_o(s)/V_i(s)$ 4 2
- Is this a high-pass or a low-pass network? 2
- Find the gain at high frequency. 2
- Find the corner frequency ω_0 . 2

$$\begin{aligned} \textcircled{*} T(s) &= \frac{V_o(s)}{V_i(s)} = \frac{Z_2}{Z_1 + Z_2} \\ &= \frac{R_2}{(R_1 + \frac{1}{sC}) + R_2} \\ &= \frac{sCR_2}{1 + sC(R_1 + R_2)} \\ &= \frac{s \frac{R_2}{R_1 + R_2}}{s + \frac{1}{C(R_1 + R_2)}} \end{aligned}$$



$\textcircled{*}$ High-pass network

$$\textcircled{*} \text{Gain} = \frac{R_2}{R_1 + R_2}$$

$$\textcircled{*} \omega_0 = \frac{1}{C(R_1 + R_2)}$$