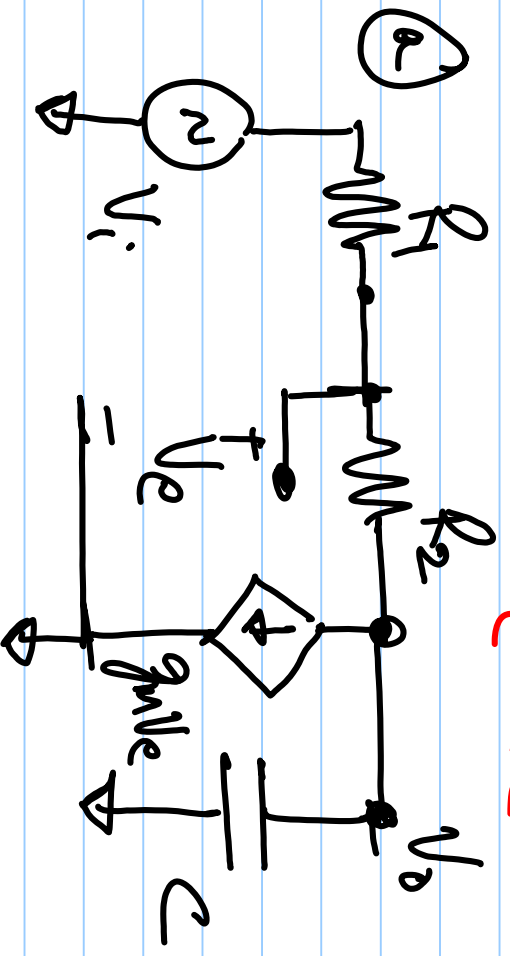
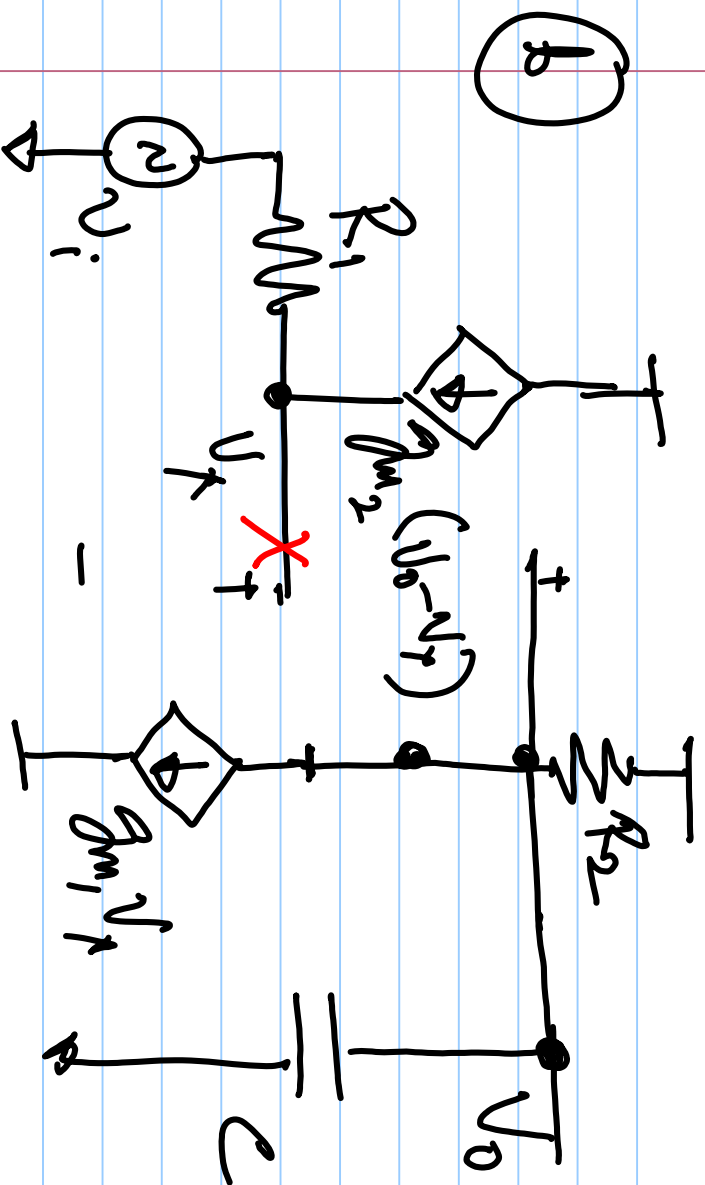


Home Assignment #3

① Find $L(s)$, $H_c(s)$, $H_o(s)$, ω_{cutoff} of $L(s)$ for the following configurations. Also plot the Bode plot for $\left| \frac{V_o(j\omega)}{V_i(j\omega)} \right|$ in log scale. Find $\left| \frac{V_o(j\omega)}{V_i(j\omega)} \right|$ if $L(s) = \infty$ (Take care of loading if applicable)

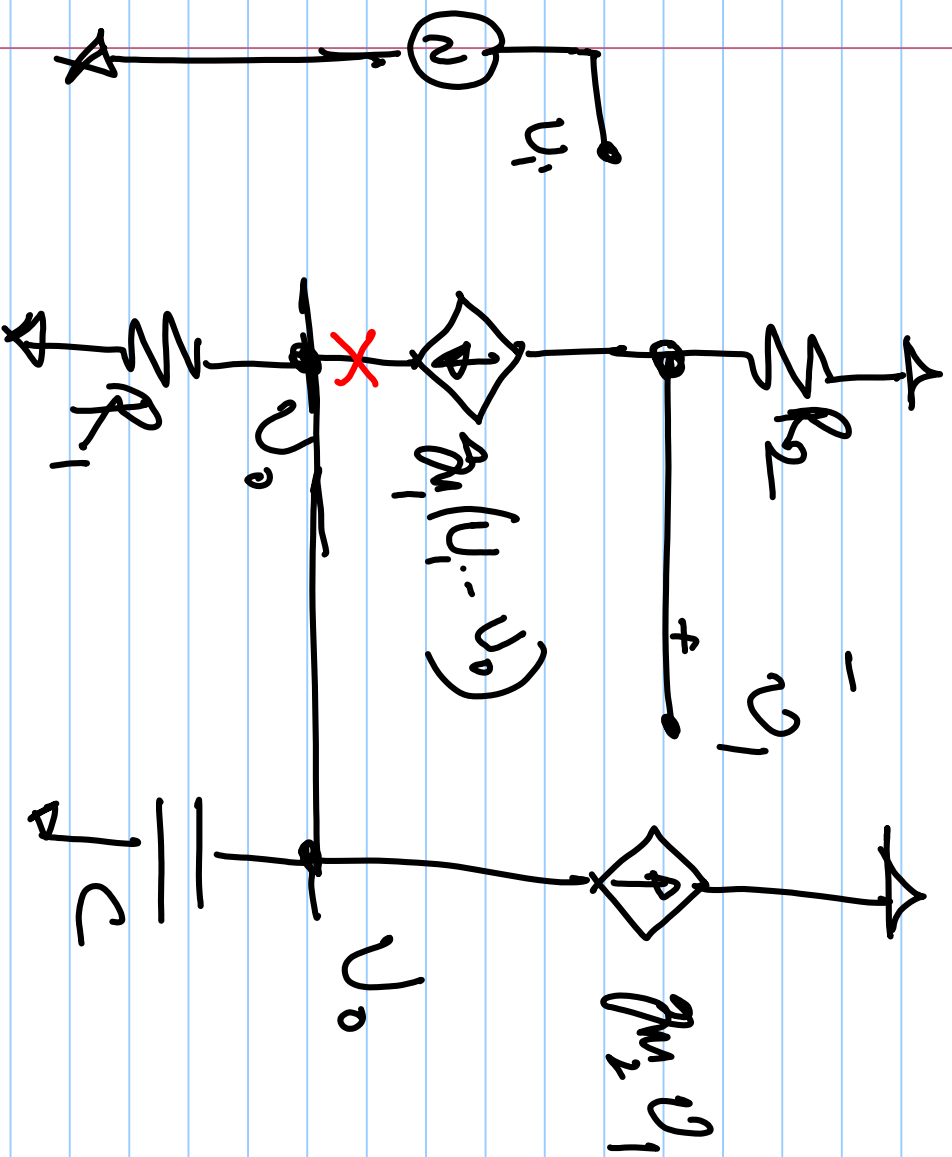


Note: To find $H_o(s)$ desensitize the vccs only



Break the loop at the location marked in the figure, and assume g_{m1} is the main even amplifier.

①

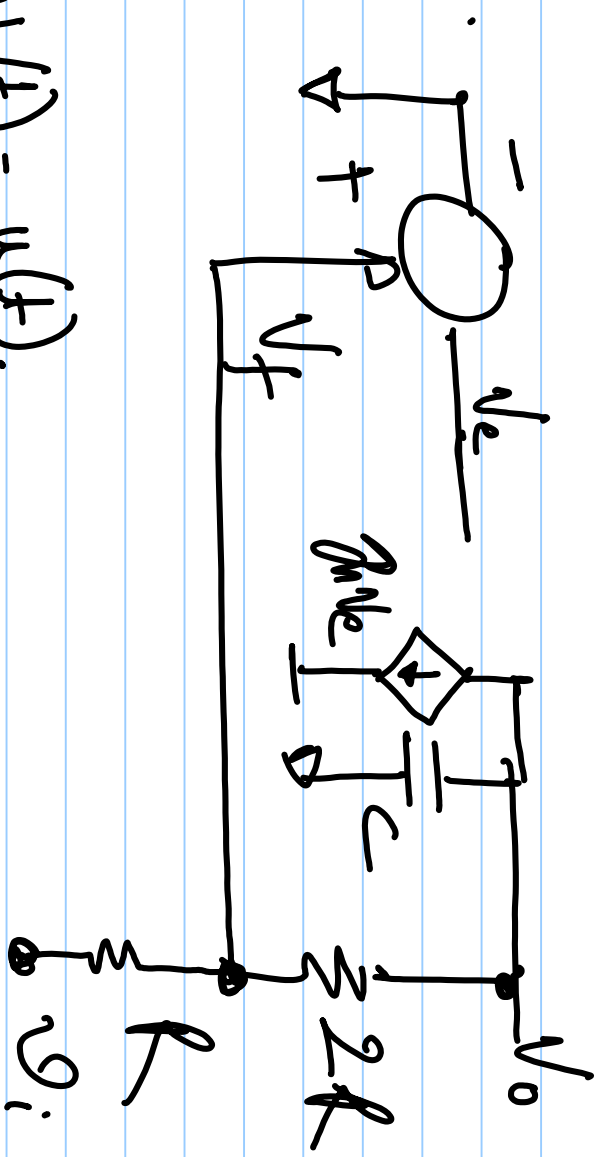


② Assume μ_1 is the main error amplifier. Break the loop at the place marked in the figure.

② For each configuration of Q.1. find the output impedance when the loop is broken and when it is closed.

What is the relation between them when $\omega \rightarrow \omega_{u,loop}$.

3



(a) $v_i(t) = u(t)$.

Find $v_o(t)$ if β changes from $\beta_{10} \rightarrow 2\beta_{10}$ after $t \Rightarrow t_c / \mu_s$ for $0 \leq t \leq \infty$

Take into account the steady state error in your calculations.