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voltage gain $\left\{ \begin{array}{l} \text{simulated} \\ \text{measured} \end{array} \right.$

Sim A_v 17dB $\leftarrow$

value found Figure 2, page 5

By hand A_v 16.5dB $\leftarrow$

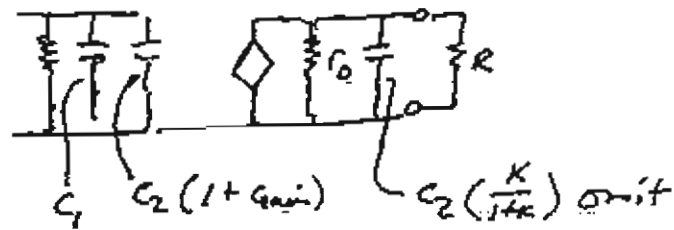
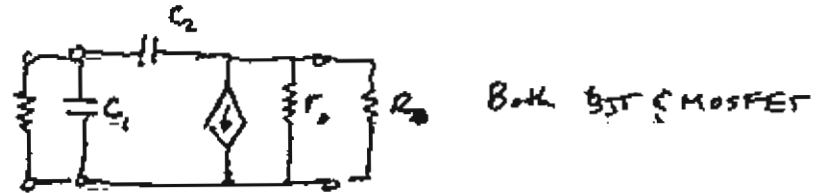
value found $\odot$ Eqn 4, page 11

% difference 3%

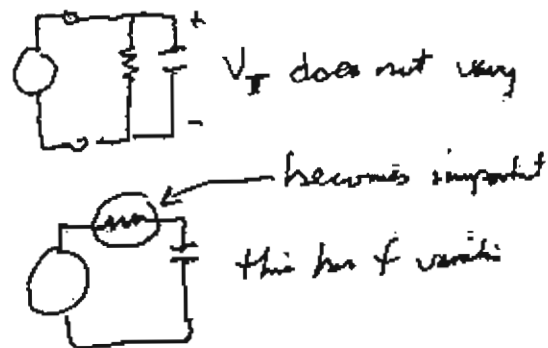
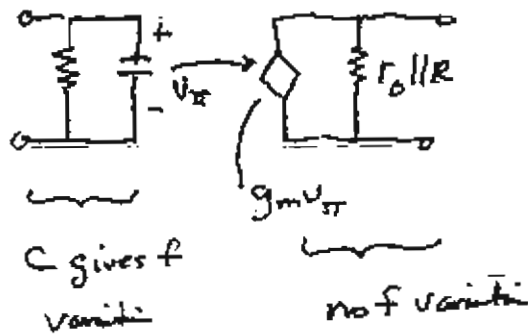


$A_v = 16.5 \text{ dB} (+)$

Miller Effect Revisited

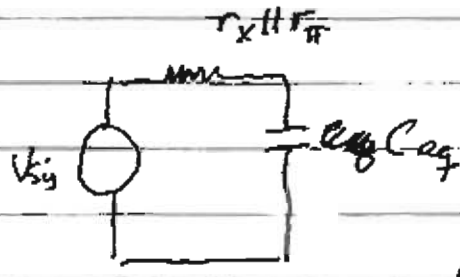
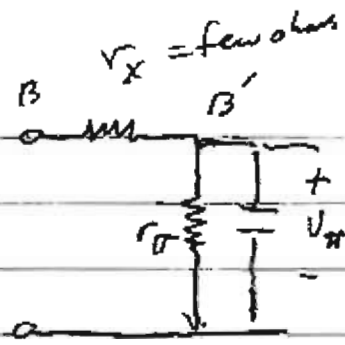


$C_2(1+gm(r_o||R))$



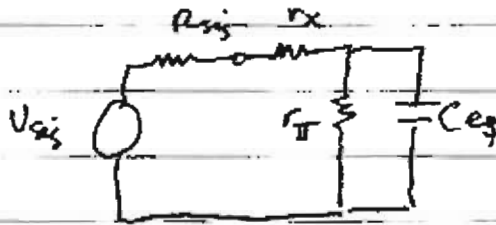
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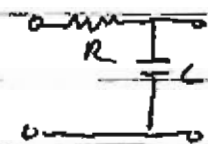


$$\omega = \frac{1}{(r_x || r_{\pi}) C_{eq}} \quad \text{High Freq Cutoff}$$

Overall gain

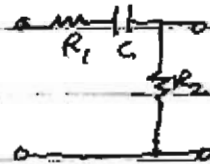


$$\omega = \frac{1}{((R_{sig} + r_x) || r_{\pi}) C_{eq}}$$

low frequency corner

$$\omega_0 = \frac{1}{RC}$$

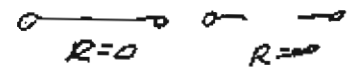
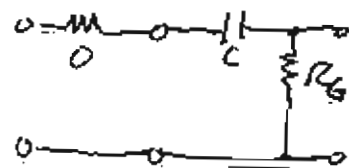
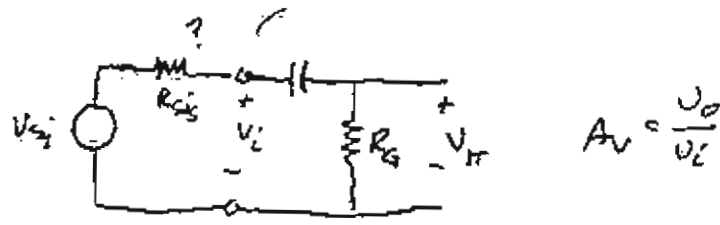
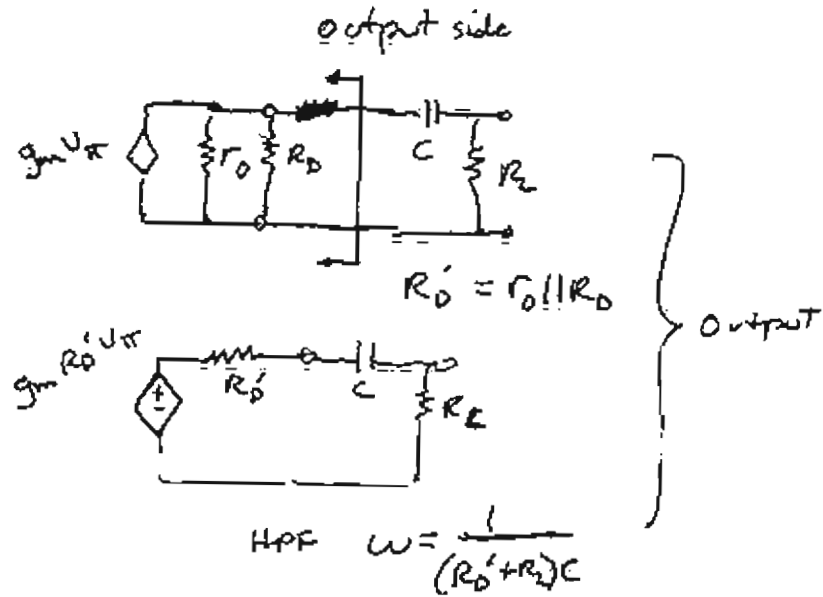
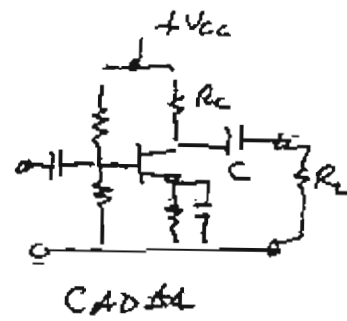
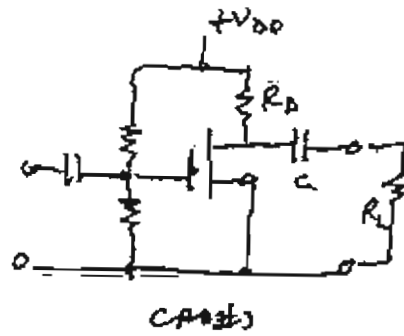
LPF



$$\omega = \frac{1}{(R_1 || R_2) C}$$

LPF

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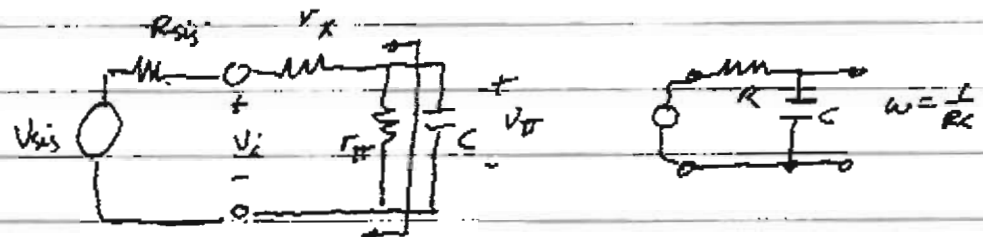


HPF $\omega = \frac{1}{R_G C}$ (Av) amp gain

$\omega = \frac{1}{(R_{i_g} + R_G)C}$ (Gv) overall gain

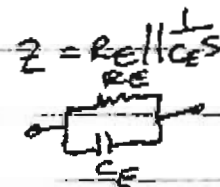
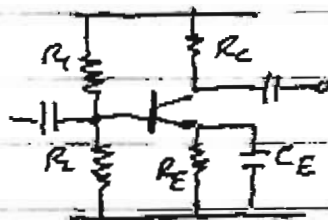
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HF cutoff (LPE) for G_v (overall gain) for BJT

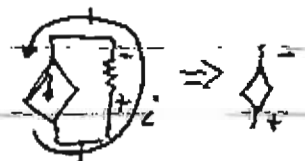
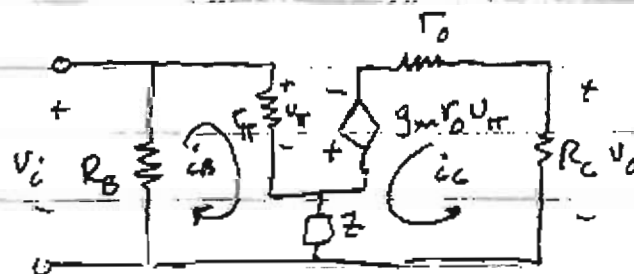
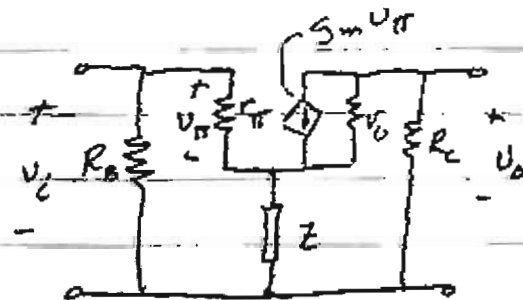


$$\omega = \frac{1}{R_{sig}' C} \quad \text{where } R_{sig}' = (R_{sig} + r_{\pi}) \parallel R_L$$

NOT IN TEXT

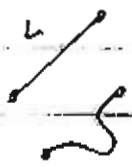


$$R_1 \parallel R_2 = R_{B_{th}}$$



$$Z = \frac{R_E \cdot \frac{1}{sC}}{R_E + \frac{1}{sC}} = \frac{R_E}{sR_EC + 1}$$

$s \rightarrow \infty, Z \rightarrow 0$
 $s \rightarrow 0, Z \rightarrow R_E$



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$$V_i = \underbrace{r_{\pi} I_B}_{V_{\pi}} + (I_B + I_C) R_E$$

$$V_E R_E = V_{CC} - I_C R_C$$

$$V_i \uparrow \rightarrow I_C \uparrow$$

$$I_C \uparrow \rightarrow V_C \downarrow \quad (\rightarrow)$$

