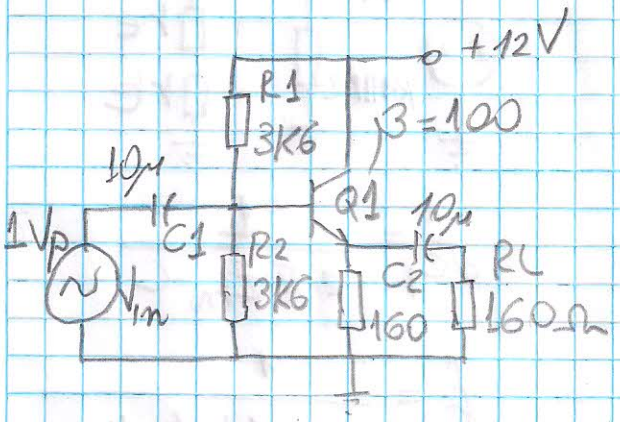
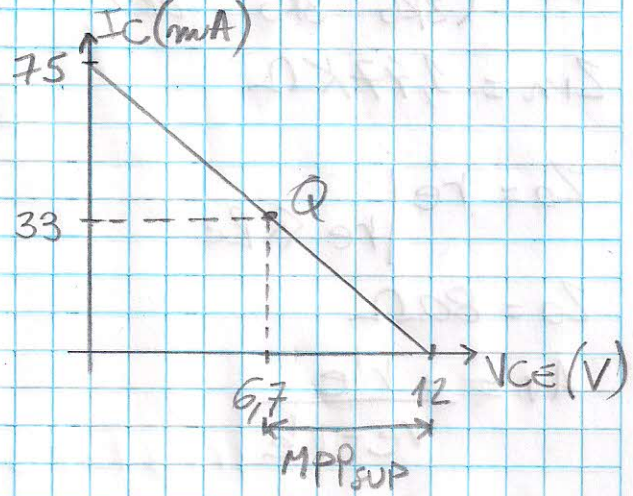
ANÁLISE COMPLETA DO AMPLIFICADOR

SEGUIDOR DE EMISSOR





$MPP_{sup} = 12 - 6,7 = 5,3V$

ANÁLISE DC

$$V_b = \frac{R_2}{R_1+R_2} \cdot V_{CC}$$

$$V_b = \frac{3K\Omega}{3K\Omega+3K\Omega} \cdot 12$$

$V_b = 6V$

$V_E = V_b - V_{BE}$

$V_E = 6 - 0,7$

$V_E = 5,3V$

$$I_E = \frac{V_E}{R_E} = \frac{5,3}{160} = 33mA$$

$V_{CE} = V_{CC} - V_E$

$V_{CE} = 12 - 5,3 = 6,7V$

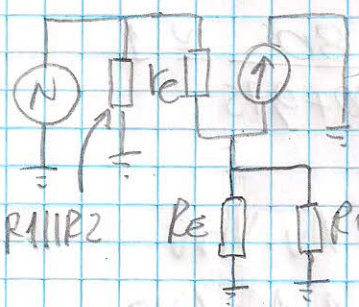
$P_Q = I_{C_Q} \cdot V_{CE_Q}$

$P_Q = 33m \cdot 6,7 = 221mW$

ANÁLISE AC

$$r_e = \frac{25mV}{I_E} = \frac{25mV}{33mA}$$

$r_e = 0,75$



$r'_e = R_E \| R_L$

$$r'_e = \frac{160}{2} = 80\Omega$$

$Z_b = \beta(r_e + r'_e)$

$Z_b = 100(0,75 + 80)$

$Z_b \cong 8K\Omega$

$$Z_{in} = R1 // R2 // Zb$$

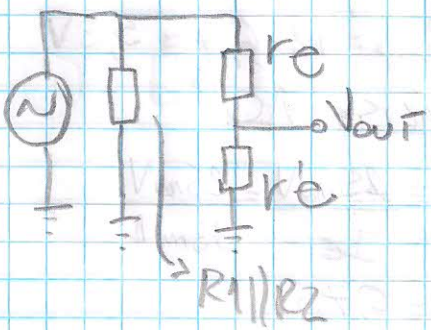
$$Z_{in} = \left(\frac{1}{3K6} + \frac{1}{3K6} + \frac{1}{8K}\right)^{-1}$$

$$Z_{in} = 1{,}47K\Omega$$

$$Z_o = re \Big|_{re \ll RE}$$

$$Z_o = 80\Omega$$

$$A_V = \frac{r'e}{re + r'e}$$

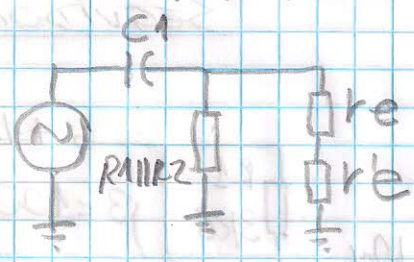


$$A_V = \frac{80}{80 + 0{,}75} \cong 1$$

$$V_{OUT} = A_V . V_{in}$$

$$V_{OUT} = 1 . 1 = 1V_p$$

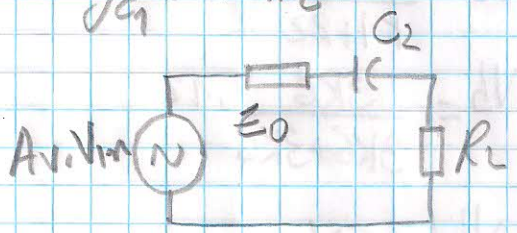
FREQUÊNCIA DE CORTE INFERIOR



$$f_{c_1} = \frac{1}{2 . \pi . Z_{in} . C}$$

$$f_{c_1} = \frac{1}{2 . \pi . 1{,}47K . 10\mu}$$

$$f_{c_1} = 11Hz$$



$$f_{c_2} = \frac{1}{2 . \pi . (Z_o + R_L) . C_2}$$

$$f_{c_2} = 66Hz$$