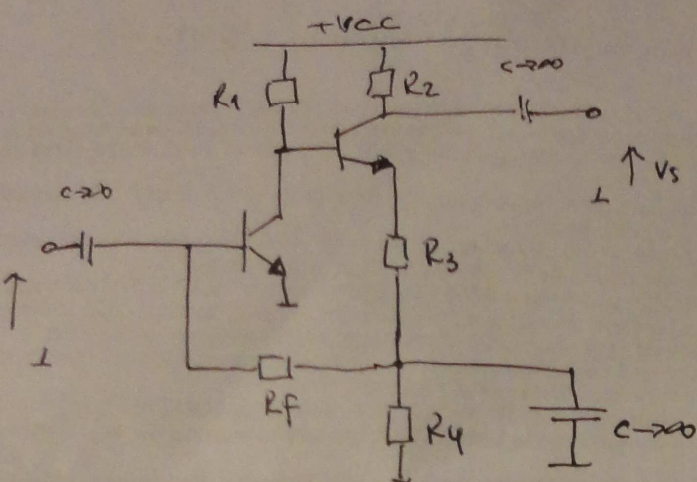


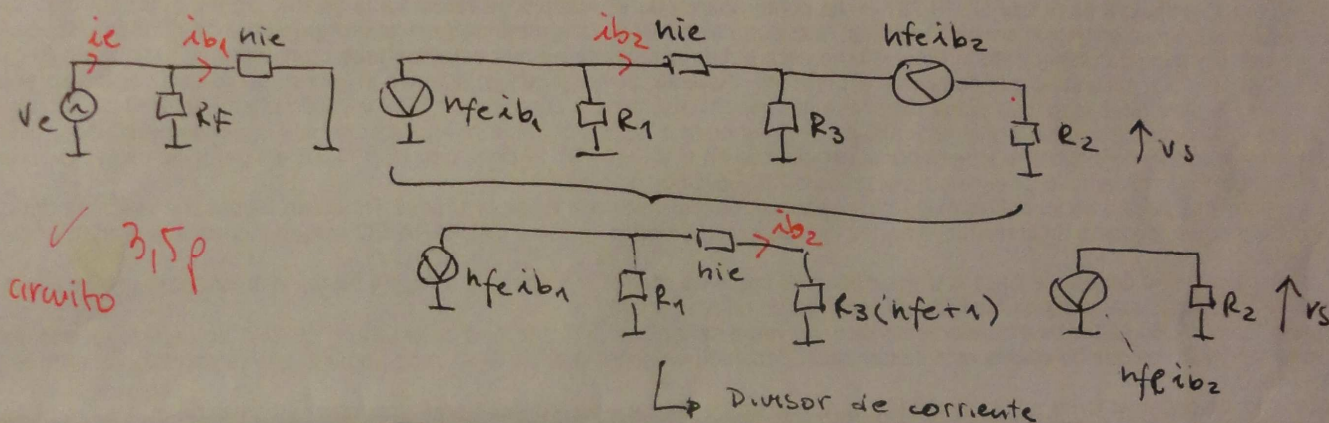
Quiz 5 Parte a

Encuentre A_v , Z_{in} y Z_{out} para el circuito a continuación.



$$\begin{aligned} R_1 &= R_2 = 10K \\ R_3 &= 0K \\ R_f &= 15K \\ R_4 &= 330 \Omega \\ h_{fe} &= 50 \\ h_{ie} &= 1K \\ h_{re} &\approx h_{oe} \approx 0 \end{aligned}$$

Circuito a ca:



$$\begin{aligned} A_v &= \frac{V_s}{V_e} = \frac{i_{b1}}{V_e} \cdot \frac{i_{b2}}{i_{b1}} \cdot \frac{V_s}{i_{b2}} \\ &= \frac{1}{h_{ie}} \cdot \frac{(-h_{fe} \cdot R_1)}{(R_1 + h_{ie} + R_3(h_{fe} + 1))} \cdot (-h_{fe} \cdot R_2) \\ &= \frac{h_{fe}^2 R_1 \cdot R_2}{h_{ie} (R_1 + h_{ie} + R_3(h_{fe} + 1))} \end{aligned}$$

$$Z_{in} = R_f \parallel h_{ie} \rightarrow 1p$$

$$Z_{out} = R_2 \quad (\text{se apagan las fuentes no controladas. si no hay } V_e, \text{ no hay } i_{b1} \text{ y tampoco } i_{b2}, \text{ sólo se ve } R_2).$$

$$A_v = \frac{50^2 \cdot 10K \cdot 10K}{1K \cdot (10K + 1K + 0K \cdot 51)} = \frac{250.000}{16,1} = 15527$$

$$Z_{in} = \frac{15K \cdot 1K}{16K} \approx 1K \approx 0K$$

$$Z_{out} = 10K$$

AMM, 20/2