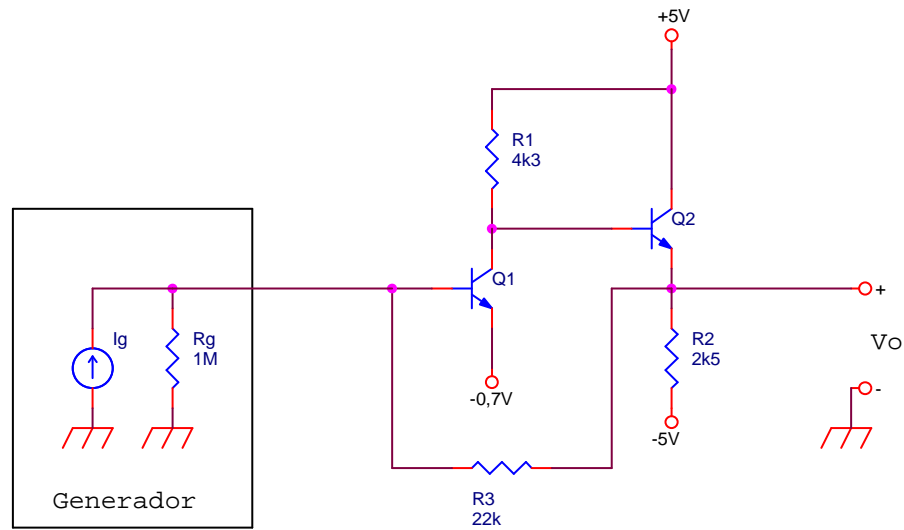


The schematic given below shows a DC coupled feedback amplifier intended for operation at frequencies up to 3MHz.



DATA: $h_{FE}=100$; $V_T=25\text{mV}$; $V_A=100\text{V}$; $V_{BE}=0.7\text{V}$; $C_{\mu 1}=2.5\text{pF}$; $C_{\pi 1}=C_{\pi 2}=C_{\mu 2}=0$;

Questions:

- 1) Compute the bias points (I_{CQ} , V_{CEQ}) for Q1 and Q2.

If you did not compute the bias point in question 1, assume $I_{CQ1}=1\text{mA}$; $I_{CQ2}=2\text{mA}$.

- 2) Draw the small-signal schematic of the amplifier. Establish that there is negative feedback in the amplifier. Identify the feedback configuration, the transfer function stabilized by this configuration and the most convenient two-port representation.
- 3) Draw schematics for both A' and β networks.
- 4) Compute the gain and input & output impedances for the amplifier.