I) For the figure below assume the following specifications:

- $V_T = 0.025$ volts
- $\beta = \infty$
- $Z_{\text{OUT}} = 1k$
- $I_{\text{CQ}} = 1$ mA
- $\text{GAIN} = 20$
- $V_{\text{CEO}} = 8$ volts  (V_{\text{CEO}}$ does not equal $V_{\text{CQ}}$)
- $Z_{\text{in}} = 10k$
- $V_{\text{BE}} = 0.7$ volts

Find the value of the resistors. (Hint: Using the specifications in the order given above you can find the resistors in the order $R_c$, $R_{e1}$, $R_{e2}$, $R_1$ and $R_2$)
II) For the amplifier shown below find Zin, Zout, and the $\text{GAIN} = \frac{v_o}{v_{in}}$. Your answer will be in terms of $R_1, R_2, R_3,$ and $R_4$. (Assume $r_e << R_3$ and $\beta = \infty$)

III) Find $V_{CEQ}$. (Assume $V_{BE} = 0.7$)