ELEC 302 Lab 3

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Question 1. $V_{R_B} = 4.27V$, $V_{R_C} = 3.29$, $V_{CE} = 1.75$. $I_B = \frac{4.27}{43 \cdot 10^3} = I_B = 99.3\mu$A, $I_C = 16.5$mA. $\beta = 166.2$

Question 2.

$$I_B = \frac{I_C}{\beta} = 30.1\mu\text{A}$$

$$V_E = 470 \cdot \frac{\beta + 1}{\beta} I_C = 2.364\text{V}$$

$$10 = 2 \cdot 2.364 + R \cdot \frac{0.005}{166.2} \implies R = 129k\Omega.$$

Used $R = 130k\Omega$, $R_C = 1k\Omega$

For the values: $V_{R_C} = 5.14V \implies I_C = 5.14$mA. $V_{R_E} = 2.44$V $\implies I_E = 5.19$mA. $V_{R_1} = 6.93$V, $V_{R_2} = 3.14$V $\implies I_B = 29.15\mu$A, $V_C = 4.94$

Question 3.