QUIZ NO. 8

NAME_____ Score_____/10

Assume that Q1 and Q2 and the resistors R_C of the differential amplifier shown are matched. If $\beta_F = 100$, $V_t = 25\text{mV}$, $V_{BE} = 0.7\text{V}$ and $V_A = \infty$, find (a.) the numerical value of I_{C1} and I_{C2} if $v_1 = v_2 = 0$. (b.) *Assume* that $I_{C1} = I_{C2} = 0.5\text{mA}$ and find the numerical value of v_{C1}/v_{id} where $v_{id} = v_1 - v_2$. (c.) Continuing to assume that $I_{C1} = I_{C2} = 0.5\text{mA}$, find the numerical value of v_{C1}/v_{ic} where $v_{ic} = v_1 = v_2$.