

QUIZ NO. 7

NAME _____ Score _____ /10

Assume that Q1 and Q2 and the resistors R_C and R_E of the differential amplifier shown are matched. If $\beta_F = 100$, $V_t = 25\text{mV}$, and $V_A = \infty$, find (a.) Find the numerical value of v_{C1}/v_{id} where $v_{id} = v_1 - v_2$. (Hint: assume node x is at ac ground.) (b.) Find the numerical value of the differential input resistance defined as,

$$R_{id} = v_{id}/i_{in}$$

when $v_1 = 0.5v_{id}$ and $v_2 = -0.5v_{id}$ (c.) Find the numerical value of v_{C1}/v_{ic} where $v_{ic} = v_1 = v_2$.

