

QUIZ NO. 7

NAME _____ Score _____ /10

Assume that M1 and M2 and the resistors R_D of the differential amplifier shown are matched. If $K_n = 1\text{mS}$, $V_{TN} = 1\text{V}$, and $\lambda_N = 0$, find (a.) the numerical value of I_{D1} and I_{D2} if $v_1 = v_2 = 0$. (b.) For this part of the problem assume that $I_{D1} = I_{D2} = 0.5\text{mA}$ and find the numerical value of v_{D1}/v_{id} where $v_{id} = v_1 - v_2$. (c.) Continuing to assume that $I_{D1} = I_{D2} = 0.5\text{mA}$, find the numerical value of v_{D1}/v_{ic} where $v_{ic} = v_1 = v_2$.

