

QUIZ NO. 5

NAME _____ Score _____ /10

A NMOS common-gate amplifier is shown. Assume the parameters of the transistor are $K_N = 1\text{mA/V}^2$, $V_{TN} = 1\text{V}$, and $\lambda = 0$. (a.) Find the small signal model parameter values for g_m and r_{ds} . (b.) Find an algebraic expression for the small signal input resistance, R_{in} , the output resistance, R_{out} , and the voltage gain, v_{out}/v_{in} . (c.) Numerically evaluate the small signal input resistance, R_{in} , the output resistance, R_{out} , and the voltage gain, v_{out}/v_{in} .

