

QUIZ NO. 4

NAME _____ Score _____ /10

An NPN BJT common-emitter inverting amplifier is shown. Assume the parameters of the transistor are $\beta_F = 100$, $V_T = 25\text{mV}$, and $V_A = 100\text{V}$. (a.) If $I_C = 0.5\text{mA}$ and $V_{CE} = 3\text{V}$, find the small signal model parameter values for g_m , r_π and r_o . (b.) Find an algebraic expression for the small signal voltage gain, v_{out}/v_{in} . (c.) Numerically evaluate the small signal voltage gain, v_{out}/v_{in} .

