ECE 351 Final Exam
Fall 2009

Name____________________

Section___2___

CM____

Scores:
1)
2)
3)
4)

Total____________

I pledge on my honor that I did not copy any of this exam, and that this work is entirely my own. Furthermore, I did not use PSpice during this exam, except for the lab quiz.

____________________________________
Problem 1 (25 Points):

Find an expression for the gain $\frac{V_o}{V_{in}}$. 
Problem 2: (25 Points)

Determine if the circuit above is an amplifier or a Schmitt trigger. If it is an amplifier, find a numerical value for the gain. If it is a Schmitt trigger, plot the transfer curve and label Vomax, Vomin, UTP, and LTP with numerical values.
Problem 3: (25 Points)

The circuit above is a current source.

a) Specify values for R28 and R27 so that the current through the load is constant at 1 mA. (15 Points)

b) Find an Equation for Vo. (10 Points)
Problem 4: (25 Points)

The specifications for the OPAMP in the circuit above are:
- $I_B = 100 \text{ nA}$
- $F_T = 3 \text{ MHz}$ (Unity gain bandwidth)

a) Find the upper -3 dB Frequency of the circuit. (15 Points)

b) Add a resistor to the circuit to eliminate the output due to bias currents. The added elements should leave the gain and frequency response of the circuit unchanged. (10 Points)