EE 330 Section: \_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Pre-Lab for Lab 4: From Boolean Function to Silicon**

Revised Fall 2017

0) Choose one of the following Boolean Functions to use in this lab,

1) Draw the a stick diagram for your inverter and the other gate you are responsible for (3-input

NAND or NOR) per the discussions with your lab partner. You should be guided by this stick diagram when you do the layout of your circuit. Consider how fingers and multipliers will help in the design.

2) Draw a floorplan of the Boolean function that uses only the gates you and your partner designed (3-input NAND , 3-input NOR, and/or Inverter). The floorplan should show the input and output pin placements and the relative location of the gates. You do not have to use all the gates you and your partner have created.

3) Attach proof that demonstrates the correctness of the gate level Boolean function of step 2. This can be done by hand by applying all 8 possible inputs and building a truth table for your circuit. Alternatively, you can use any other tool of your choice to build the truth table. Compare the truth table of your implementation with the truth table of the function assigned to you.

4) At the start of the lab, you will enter the top level schematic in Cadence and then test it by applying A, B, and C waveforms. What would those input stimuli be in order to exercise all combinations of the inputs? Draw a simple figure that shows the pulse width, period, etc., of each input waveform. What output waveform do you expect?

5) Write the names of the classmate you are collaborating with and the gates you are exchanging.

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| Name of colleague | Gate you will provide | Gate you will obtain |
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