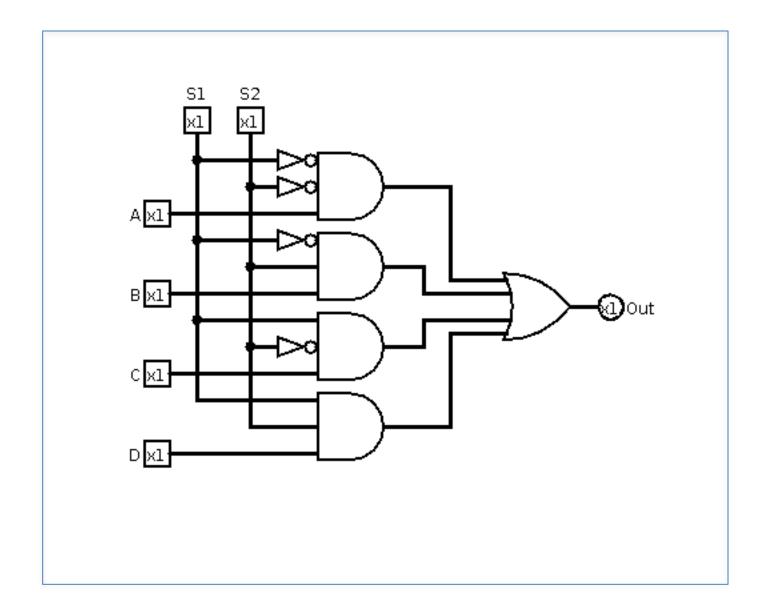
Name: Sean Russell Date: September 22, 2015

CS270 Homework Assignment 2 (HW2)

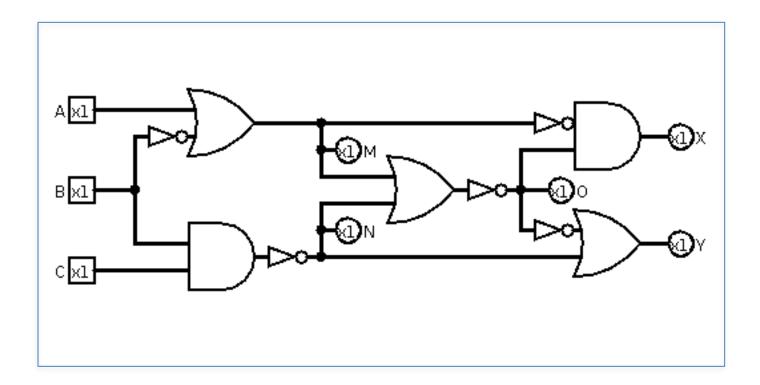
Due week of September 28 at your recitation, no late submissions. Homework and programming assignments are to be done individually.

Goals

Question 4 (10 points): Design a 4-input, 1-output multiplexer using Logisim, as shown in the Canvas homework, and turn in a schematic by pasting an image file:



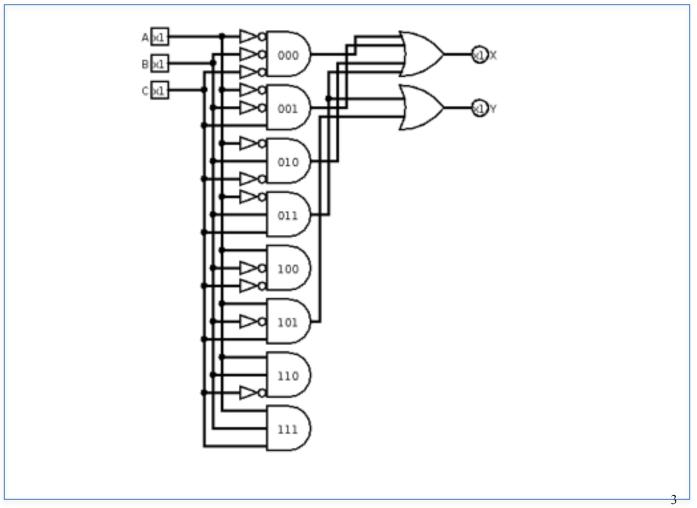
Question 5 (10 points): Design the circuit shown in the Canvas homework in Logisim and turn in the schematic, making sure the truth table matches. Paste an image of the circuit into the box below:



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Question 6 (15 points): Design a combinational circuit for the following truth table. Inputs are A, B, and C, and the outputs are X and Y. Use the methodology described in Section 3.3.4 of the textbook, which employs successive arrays of AND and OR gates. Design the circuit in Logisim and paste an image of the schematic below, making sure the truth table matches.

\boldsymbol{A}	В	\boldsymbol{C}	\boldsymbol{X}	\boldsymbol{Y}
0	0	0	1	0
0	0	1	1	0
0	1	0	1	0
0	1	1	1	1
1	0	0	0	0
1	0	1	0	1
1	1	0	0	0
1	1	1	0	0



Question 7 (15 points):

Design an exclusive-or (XOR) gate using complementary n-type and p-type transistors in a series-parallel circuit. Use Logisim and past an image of the schematic below with a complete design of the circuit with inputs A and B and output C. Hint: a straightforward design of the gate requires 8 transistors, including 4 each of n-type and p-type.

A	В	\boldsymbol{C}
0	0	0
0	1	
1	0	
1	1	

