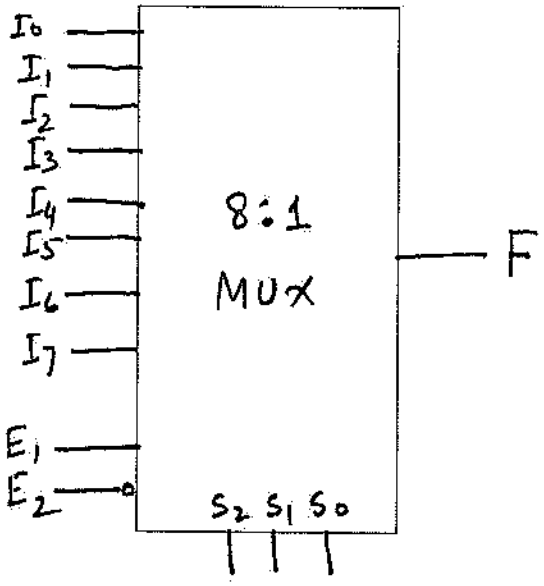
CSCIU 210 – Computer Organization

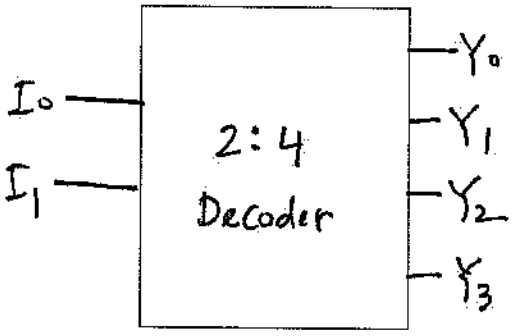
Homework-4Key, Weight: 30 points

Due on Wednesday, October 17, 2018 at the beginning of the lecture (Hard Copy)
Note: You need to include your calculation details to receive full credit!

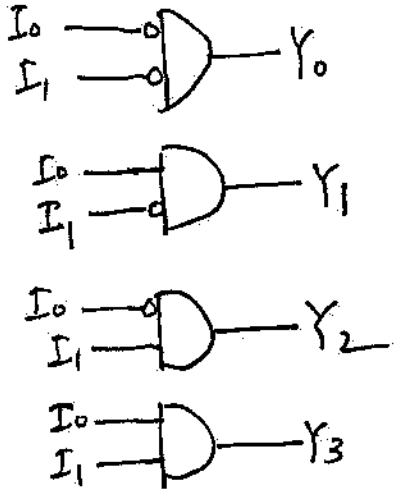
Q1. [10 points] Draw the block symbol for a 8:1 MUX with two enables. Label the inputs as I0, I1,I2,…I7; select lines as S0,S1,S2 and the output as F. The enables are E1 and E2, where E1 is active high and E2 is active low.



Q2. [10 points] Draw the block symbol of a 2:4 decoder. Write the truth table for it, and draw the gate level circuit.

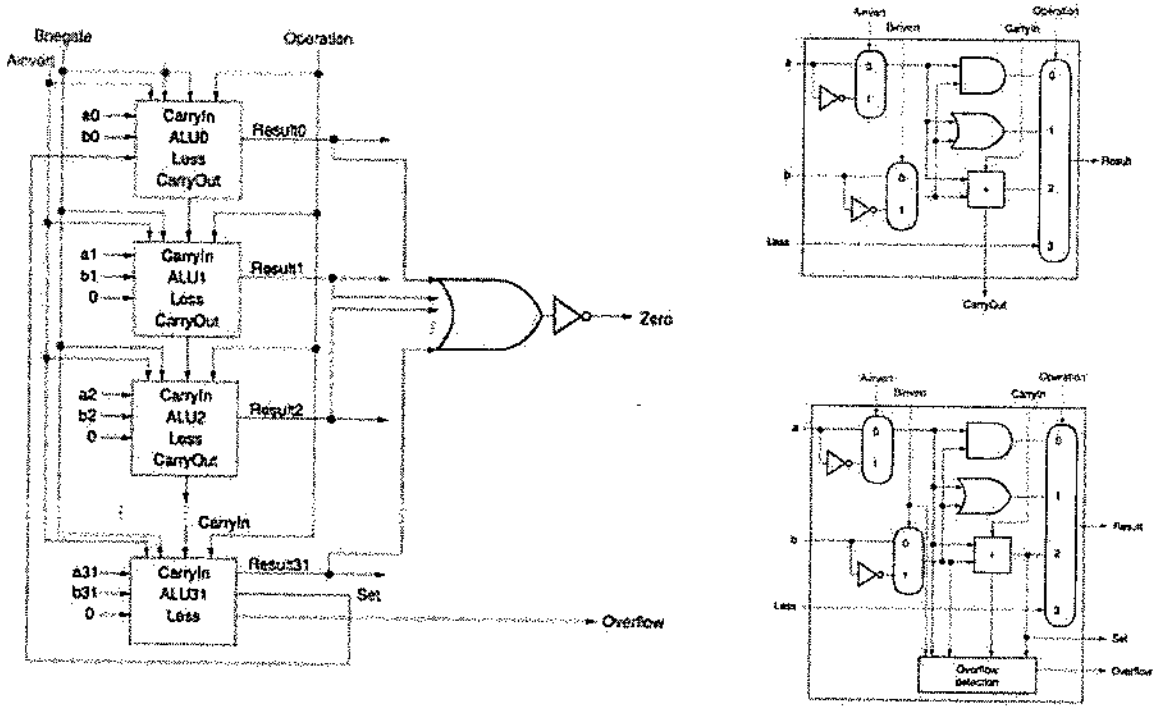


I_1	I_0	O_3	O_2	O_1	O_0
0	0	0	0	0	1
0	1	0	0	1	0
1	0	0	1	0	0
1	1	1	0	0	0



Q3. [10 points] An ALU diagram we covered in class is shown below:

The ALU line control code is [Ainvert (1 bit), Binvert (1 bit), Operation (2 bit)]. Answer the following questions:



a) [5pts] Give ALU line code for NAND (not-AND) function

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b) [5pts] Give ALU line code for SLT (set on less than) function

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