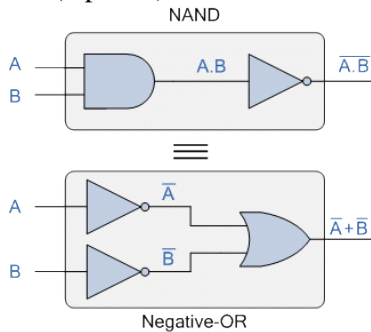


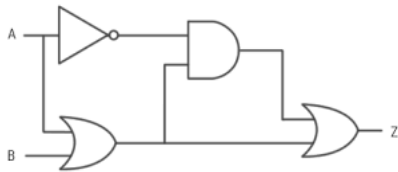
CS 3650

Homework #1 (20 points)

- (2 pts) A machine with 4.2 GHz clock rate, what is its clock cycle time, i.e. the time for one cycle? The result must be expressed (and rounded if needed) in a whole number in proper time unit. For example, 0.12 second is not proper and it should be 120 ms (milliseconds).
- (3 pts) Suppose you wish to run a program P with $12 * 10^{11}$ instructions on a 4 GHz machine with a CPI (average CPI) of 2. What is the expected CPU time (expressed in time unit seconds)?
- (5 points) Use truth-table to prove that the following two circuits are equivalent.



- (5 points) Given a logic circuit below,
 - write a logic equation for it.
 - when A is 1, B is 0, what is Z?



- (5 points) Use 2-input AND, 2-input OR and Inverter gates only to construct a circuit based on given truth table.

Inputs			Output
A	B	C	X
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	1
1	1	1	0