CPS213 Lab3
Due November 9 @ 23:00.

Requirement:

Students are required to produce one document and one simulation file; document which includes derivation your steps and screenshots of simulated circuits. Simulation file must be valid me to evaluate using my test cases.

Becomes more familiar with the logic simulator will require some time. Start early

1. Simplify the following function and implement them using 2-level only NAND circuits, simulated with software, show true table produce from simulator. (20 marks each)

   a.   F(ABCD)=AC'D'+A'C+ABC+AB'C+ A'C'D'

   b.   F(ABC)=(A'+C'+D')(A'+C')(C'+D')

2. Built Half adder using only NOR gates and then construct a 4 bits adders using your hafts adder (only NOR gates are allowed)   (30 marks)

   -    Connect the overflow to a light bulb that lights up if the sum of the result in an overflow.

   -    I should be able to run your simulation file with my test cases.

3. Implement, via simulator, a 4-bits Binary to Gray Code converter using only NAND gates. Your circuit only care Gray Code values from 0-9. (30 marks)

   -    Follow the design procedure discussed in class and show your k-map(s)

   -    Make sure to test your circuit

i_0
i_1
i_2
i_3

Binary to ray Code converter

O_0
O_1
O_2
O_3