CPS213 Lab2

Due: October 12 @ 23:00hr

For this lab:

Show your steps taken to simplify functions.

Use logisim to draw circuits

1. Simplify the following (algebraically): (10 marks)

   a. (a+b+c')(a'b'+c)

   b. x'y'z' + w'x'yz' + wx'yz'

2. A)Find complement of F=(a+c)(a+b')(a'+b+c') and produce a truth table F'. (10 marks)

   B) Find the complement for F using the Dual Principle (5marks)

   F= xy'z' + w'x+yz' + wx'yz'

3. Fill in the truth table and draw the logic circuit (20 marks)

   a. F= x'y'z' +x'yz +x'yz'

   b. F= ac'b+c'+d'b'

4. From the table produce the function expression as sum of products ,*i.e. f(xyz)=...+..+...,* Simplify the expression algebraically and draw the circuit for the simplified expression. (15 marks)

x	y	z	f
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

5. Draw and fill in a K-map, produce minterms, simplify function via K-map and draw circuit: (45marks)

a. $F(x,y,z,w)= wxy + yz + xy'z + wz'$

b. $F(A,B,C) = A'B'C' + A'B + ABC' + AC$

c. $F = A'BCD + ABC + CD + B'D$