

Name and Student ID: _____

Lab Section: ____

Date: _____

PRELAB:

Read the Mini-Project lab document and complete as much of this answer sheet as you can before lab.

TA Initials: _____

LAB:

4.0 Draw Uncle Bob's circuit below, using only AND, OR, and NOT gates.

5.0 Give the shorthand canonical SOP expression for Uncle Bob's circuit and then the Verilog code which implements this behavior:

B(W, X, Y, Z) = _____

Verilog:

Demonstration of Quartus Results: _____

6.0 Truth table for Uncle Bob's function B and the 4-bit prime detector function P.

W	X	Y	Z	B	P
0	0	0	0		
0	0	0	1		
0	0	1	0		
0	0	1	1		
0	1	0	0		
0	1	0	1		
0	1	1	0		
0	1	1	1		
1	0	0	0		
1	0	0	1		
1	0	1	0		
1	0	1	1		
1	1	0	0		
1	1	0	1		
1	1	1	0		
1	1	1	1		

P	wx				
	yz	00	01	11	10
	00				
	01				
	11				
	10				

Simplified SOP Expression:

$P(W, X, Y, Z) =$ _____

7.0 Give your implementation of the correct 4-bit prime detector circuit (**P**) below as either Verilog or a schematic (your choice). Then demonstrate the results:

Demonstration of ModelSim Results: _____

8.0 Design and implement a circuit that uses Uncle Bob's circuit but fixes his mistakes. Draw it below and demonstrate the results:

Demonstration of ModelSim Results: _____