

About how many total hours did you spend actively working on this assignment? _____

Q1 [4 points]

Time spent on Q1: _____

F1 =

F2 =

A	B	C		F1	F2
0	0	0			
0	0	1			
0	1	0			
0	1	1			
1	0	0			
1	0	1			
1	1	0			
1	1	1			

Q2 [6 points]

Time spent on Q2: _____

Draw your three circuits here:

Q3 [4 points]

Time spent on Q3: _____

a:

- Just a large quadruple shot chai french press americano
- Just a small soy mocha earl grey espresso.
- Just a blueberry scone.
- Both a large quadruple shot chai french press americano and a blueberry scone.
- Both a small soy mocha earl grey espresso and a blueberry scone.
- Both a large quadruple shot chai french press americano and a small soy mocha earl grey espresso.
- All three items.

b:

- Just a large quadruple shot chai french press americano
- Just a small soy mocha earl grey espresso.
- Just a blueberry scone.
- Both a large quadruple shot chai french press americano and a blueberry scone.
- Both a small soy mocha earl grey espresso and a blueberry scone.
- Both a large quadruple shot chai french press americano and a small soy mocha earl grey espresso.
- All three items.

Q4 [10 points]

Time spent on Q4: _____

Truth table for parts a [2] and c [2]

A	B	AB	A'B'	AB + A'B'	bexp _{4b}	AB + bexp _{4b}
0	0					
0	1					
1	0					
1	1					

*Below, show steps in deriving the answer expressions***b [1] bexp_{4b} =****d [2] bexp_{4d} =****e [3 independent] bexp_{4e} =**

Q5 [5 points]

Time spent on Q5: _____

a [2] $b_{exp_3} =$

b [3] circuit diagram:

Q6 [5 points]

Time spent on Q6: _____

a [2 *independent*] $b_{exp_4} =$

b [3 *independent*] circuit diagram:

Q7 [8 points]

Time spent on Q7: _____

a [4] Express XOR in terms of 2-input NAND gates.

b [4 *independent*] Express XOR in terms of 2-input NOR gates.

Q8 Universal Muxification of Gates [8 points]

Time spent on Q8: _____

a. NOT A [1 point]

b. A AND B [2 points]

c. A OR B [2 independent]

d. A NAND B [3 independent]