Homework #3 Clay Ramey Comp 3350

Q1

A	B	S	C
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

* If A or $\bar{S}$ equals zero, the AND gate produces a zero. If B or S or zero, the end gate is zero. If either AND gate produces a 1, the or gate outputs 1 for C *

Q2

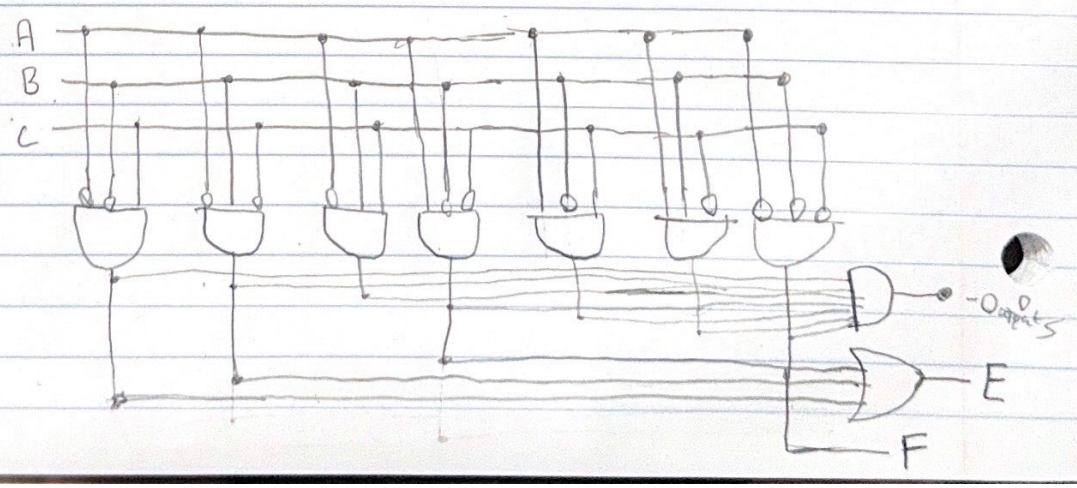
Q2-1

A	B	C	D	E	F
0	0	0	0	0	1
0	0	1	1	1	0
0	1	0	1	1	0
0	1	1	1	0	0
1	0	0	1	1	0
1	0	1	1	0	0
1	1	0	1	0	0
1	1	1	1	0	0

; 1 = true

* E is true if 2 inputs = False
* F is true if ALL inputs = False

Q2-2



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Q3

Q3-1 A.

→ BC ALU result is used as an adress to store/load a value from register. The result from ALU is written back into registers file. this makes A correct

Q3-2 A.

→ If instruction is arithmetic-logic instruction, then the ALU result must be written to a register this makes A correct

Q4

using
→ beq $s1, $t1, offset
→ if ($s2 == $s1) then => PC + 4 + 4 * offset
→ if ($t1 == $s1) then => branch to offset

Q4-1 (offset)4 = 40 → 40
10 (4)

Q4-2 (offset)4 + PC + 4 = 80056 → 80056
40 + 80012 + 4 = 80056

Q4-3 PC-relative addressing