3.01: n-type p-type

Gate = 1 closed open

Gate = 0 open closed

3.02: One wired and one not wired

3.03: 4 (AND, NAND, OR, NOR) with 4 different combinations of input each (if that is important making it 16 total when combined)

3.04: From top to bottom, then left to right: wired, not wired, wired, not wired and will output 1 when both inputs are 0. Any other combination of inputs should come out as 0.

3.05:

A	B	C	Out
1	1	1	0
1	1	0	0
1	0	1	0
1	0	0	1
0	1	1	0
0	1	0	1
0	0	1	0
0	0	0	1

3.06:

A	B	C	D	Z
1	1	0	0	1
1	0	0	1	0
0	1	1	0	0

0 0 1 1 0

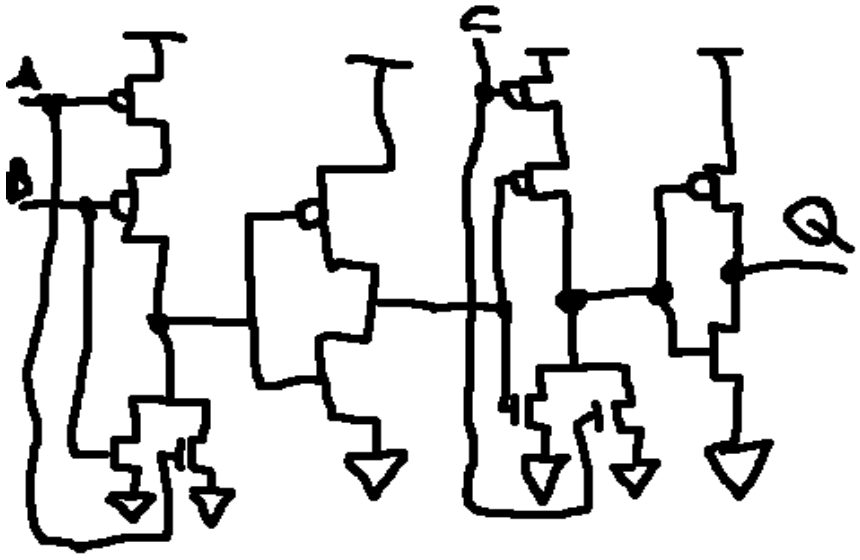
3.07: If only A or B is 1, the source of one input is grounded through the drain of the opposite input? I get the impression this is bad and it is the only thing in the diagram that seemed off.

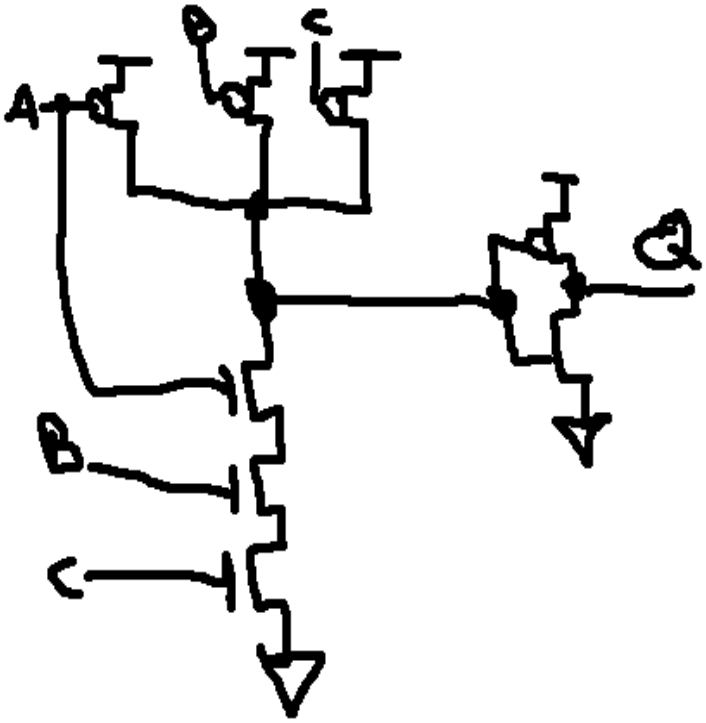
3.08: Y is obviously the output. A would be the top-right and B and C could be either of the other two in the top as well as the bottom-most two leaving the middle one on the bottom to be A.

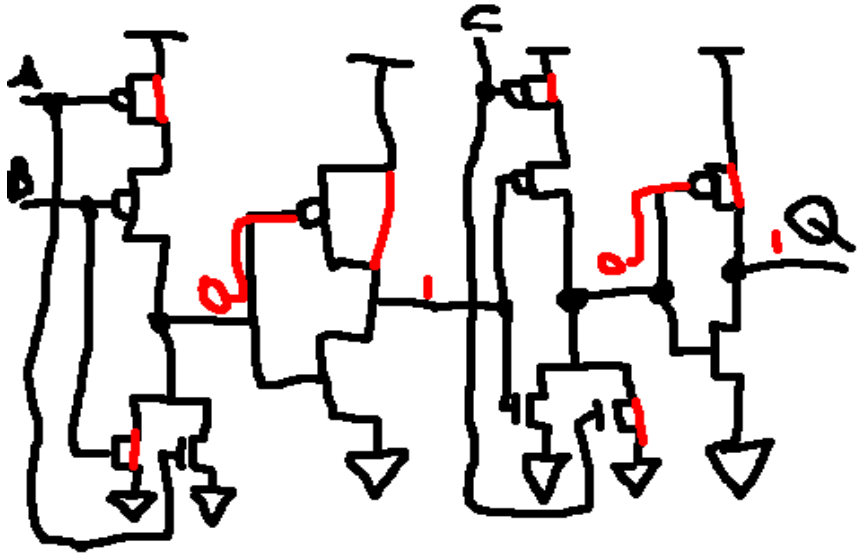
3.09: from top to bottom: 0, 0, 0, 1; AND gates have the same input/output pattern as well

3.10: From top to bottom, 1, 0, 0, 0

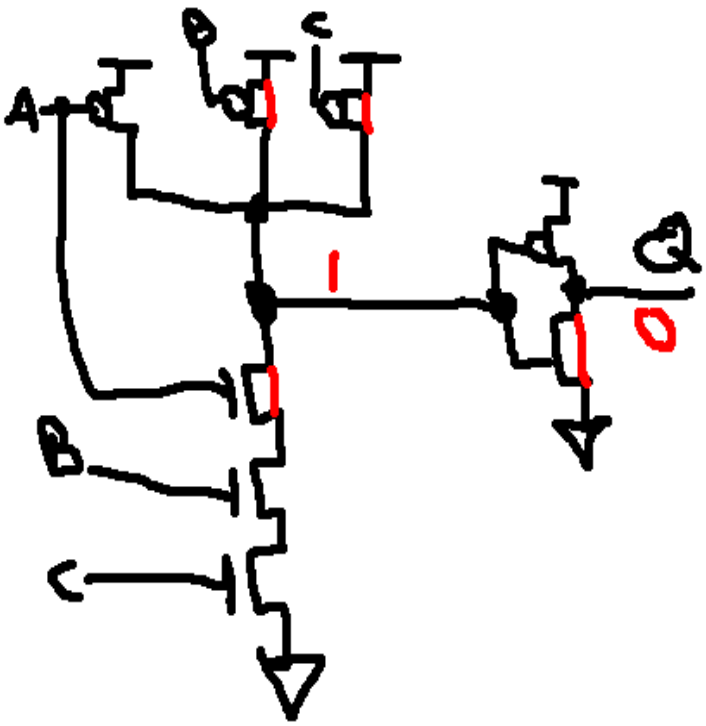
3.11: a)

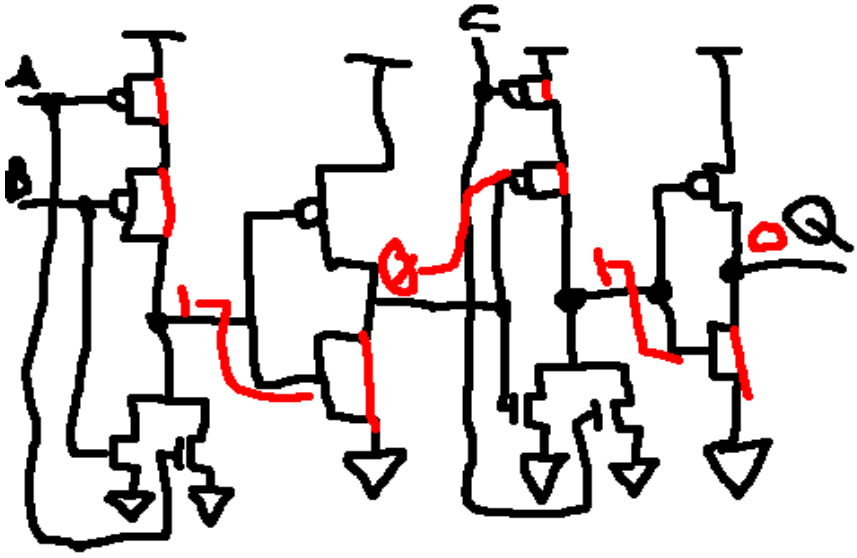




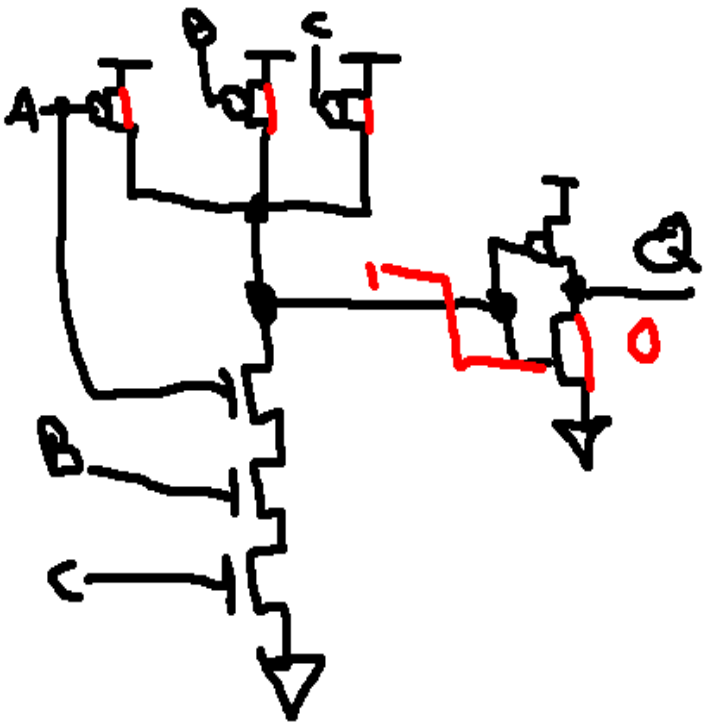


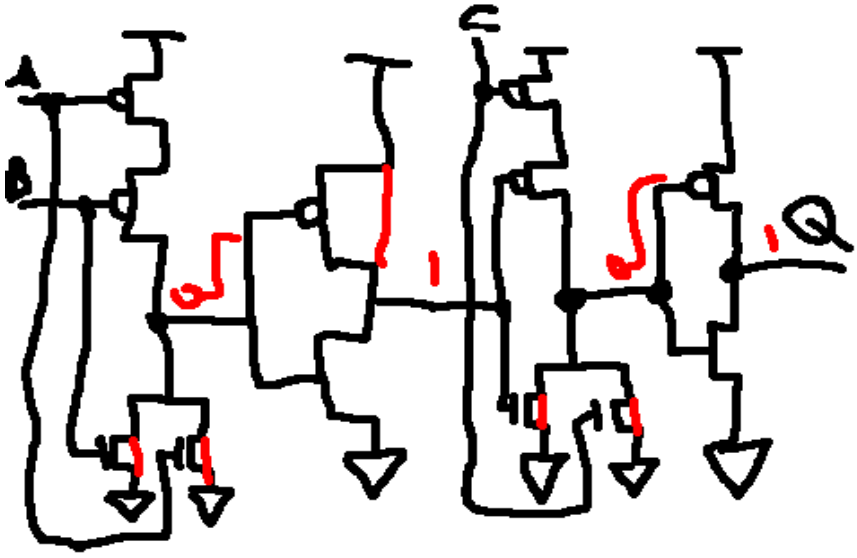
b) 1)



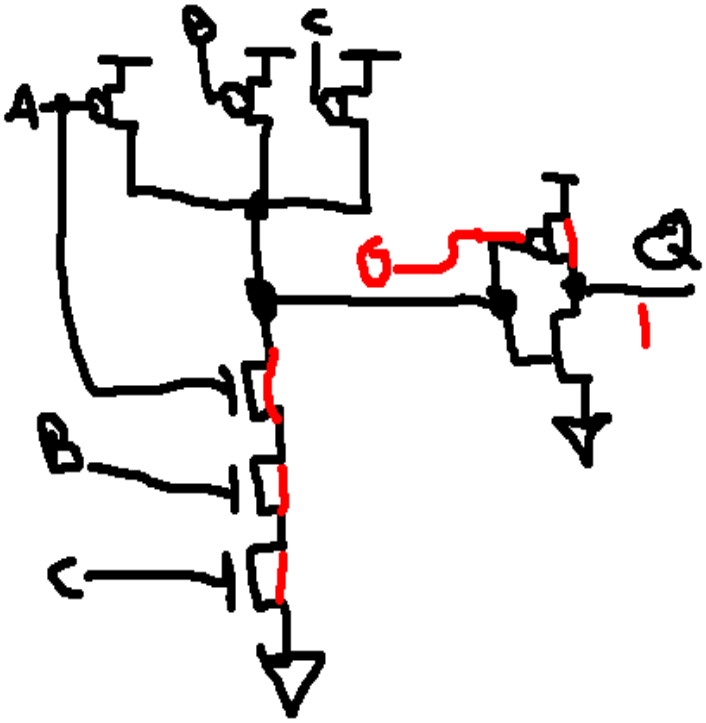


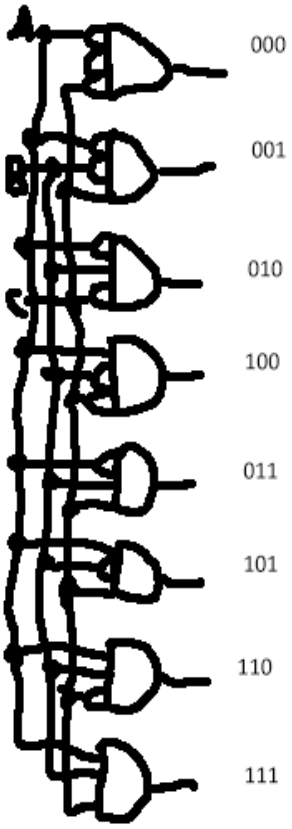
2)





3)





3.12:

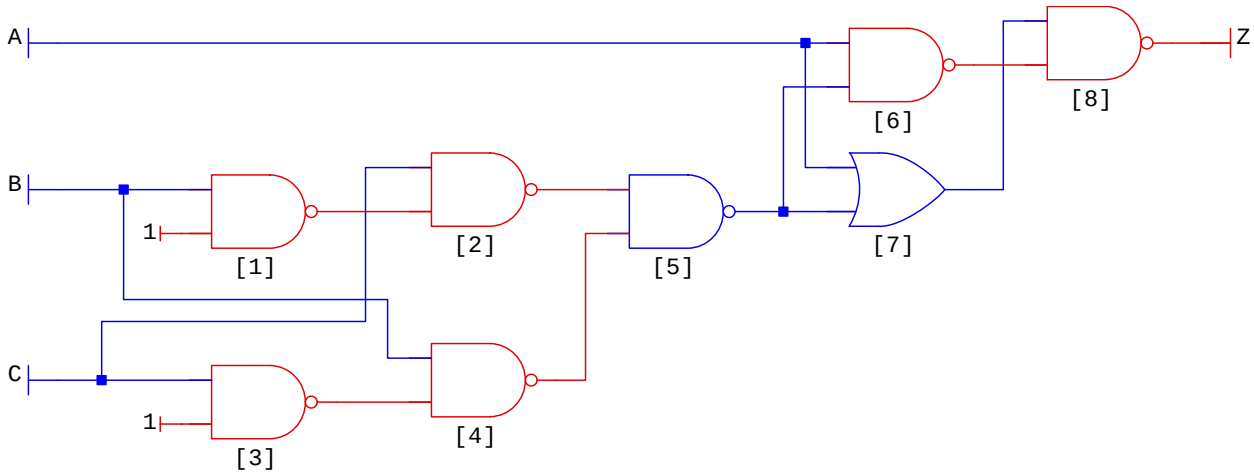
3.13: 32 lines

3.14: 1 output, 4 select lines

3.15:

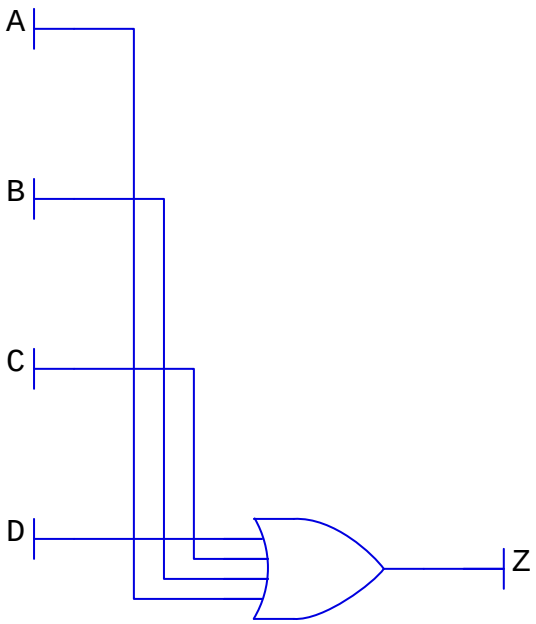
Ci	1	1	1	0
A	0	1	1	1
B	1	0	1	1
S	0	0	1	0
Co	1	1	1	1

3.16:



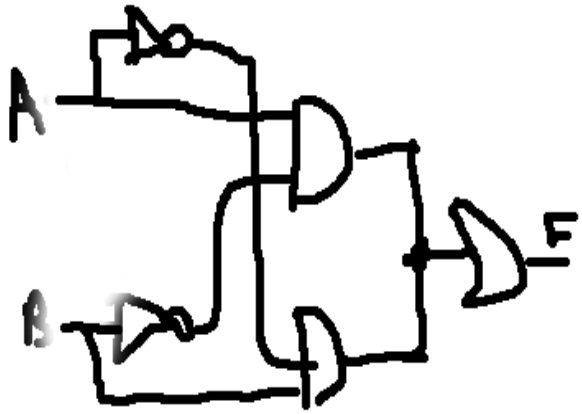
3.17: a)

A	B	C	D	Z
1	1	1	1	1
1	1	1	0	1
1	1	0	1	1
1	0	1	1	1
0	1	1	1	1
1	1	0	0	1
0	0	1	1	1

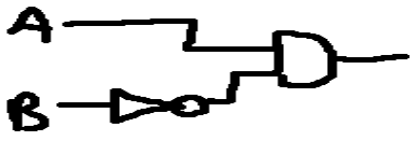


b) [1] (OR gate)

3.18: a)



b)

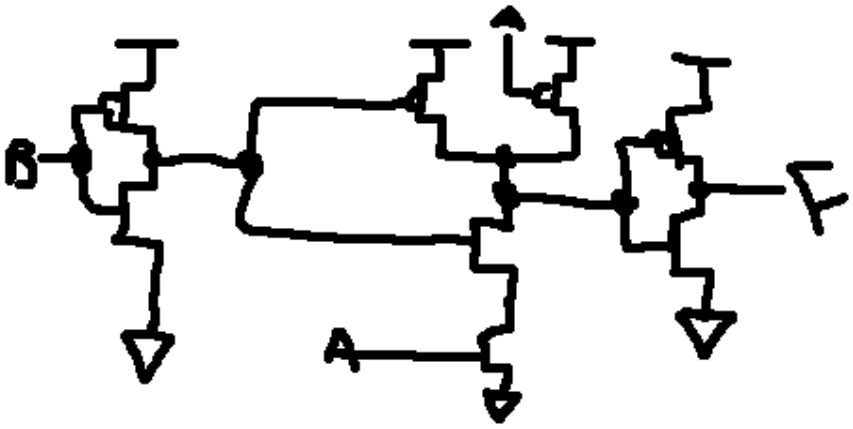


c) Use A

d) No, it needs a carry output

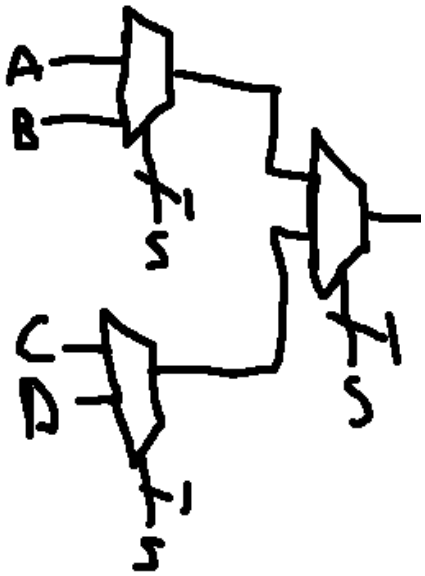
3.19: Other than the fact that the figure on the right relies on black voodoo magic to work, the one on the left is not dependent on the output of anything else in the diagram as input for something else in the diagram that has input being used for itself.

3.20: A OR NOT(B)



3.21: 32,768

3.22:



3.23: They are all 0.

3.24: It determines whether to use input B or input C. Assuming a straightforward setup, 1 would make it B and 0 would make it C.

3.25: a) 3

b) 3

c) 12

d) 96

3.26: I think so, the inputs for lines for sum are: 0, 0, 0, 1, 0, 1, 1, 1 and for carry are: 0, 0, 0, 1, 0, 1, 1, 1.

3.27: a) Whatever A is

b) whatever it was when it started

c) yes, it has the magic flowing through it just like the RS latch

3.28: What? Doesn't it just slide right?