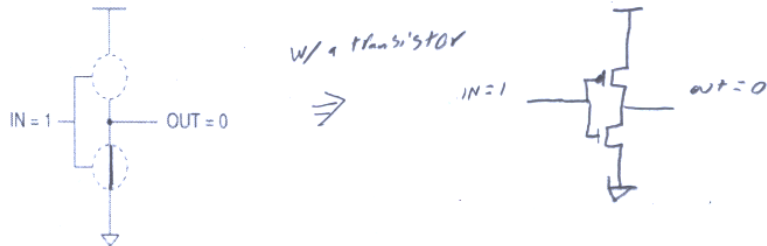


ECE 379
Discussion 2 handout

1. 3.2 Replace the missing parts in the circuit below with either a wire or no wire to give the output OUT a logical value of 0 when the input IN is a logical 1.



2. 3.5 Complete a truth table for the transistor-level circuit in Figure 3.34.

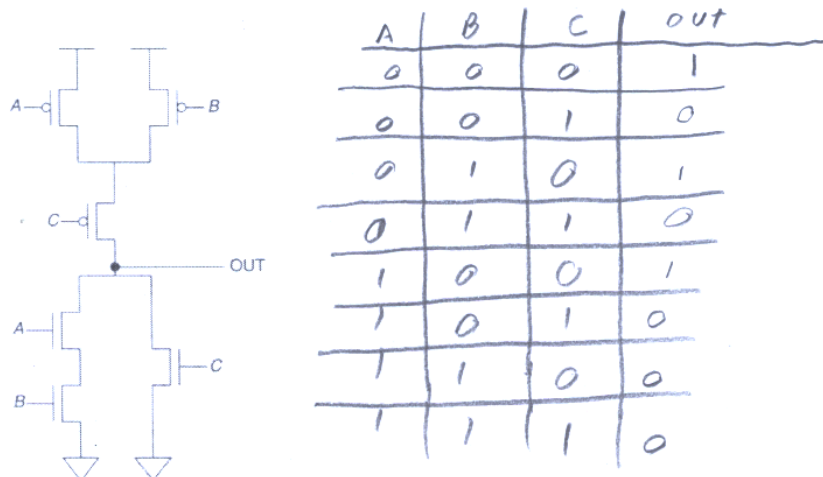
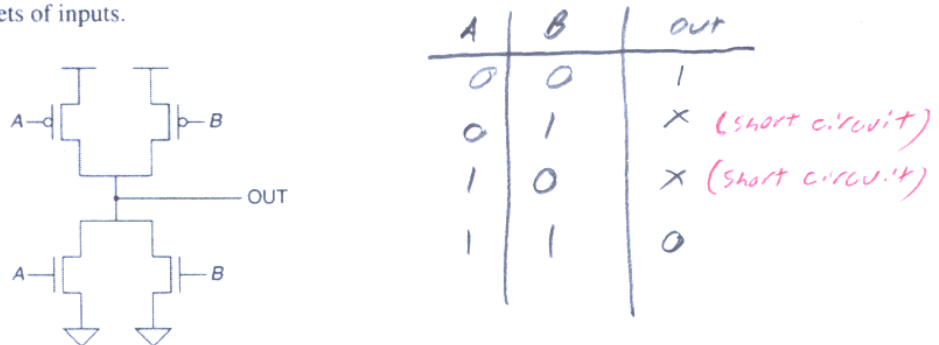


Figure 3.34 Diagram for Exercise 3.5

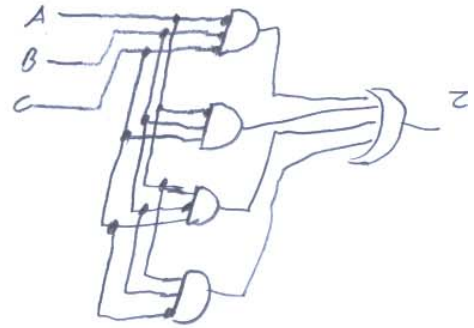
3. 3.7 The circuit below has a major flaw. Can you identify it? Hint: Evaluate the circuit for all sets of inputs.



4. **3.16** Given the following truth table, generate the gate-level logic circuit, using the implementation algorithm referred to in Section 3.3.4.

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

$\bar{A}\bar{B}\bar{C}$
 $\bar{A}BC$
 $A\bar{B}C$
 ABC



5. **3.43** Shown in Figure 3.43 is an implementation of a finite state machine with an input X and output Z.

- a. Complete the rest of the following table.
 S1, S0 specifies the present state.
 D1, D0 specifies the next state.

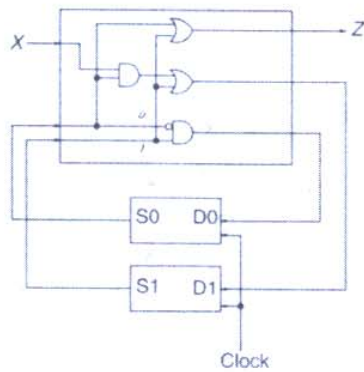


Figure 3.43 Diagram for Exercise 3.43

S1	S0	X	D1	D0	Z
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	1
0	1	1	1	0	1
1	0	0	1	1	1
1	0	1	1	1	1
1	1	0	1	0	1
1	1	1	1	0	1