Name: _Key_   uname: _Key_

Honor code:

I have not given or received aid on this quiz, nor have I observed anyone else doing so:

Sign here:_____

This quiz is graded out of 100 points and is worth about 4% of your class grade. You will have _20 minutes_ for this quiz. **_Closed everything including calculators!_** To receive partial credit, work must be shown.

1. Transistor to truth table **[35 points, -6 per wrong or blank entry, minimum 0]**

Top Bottom

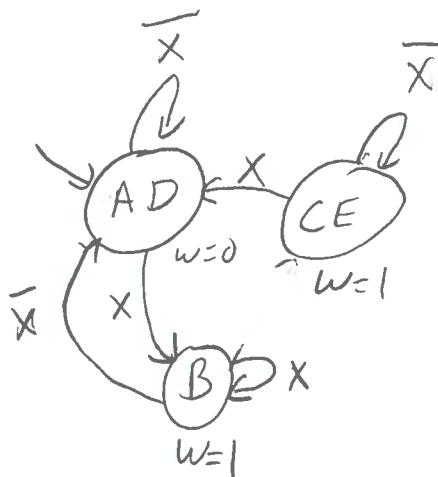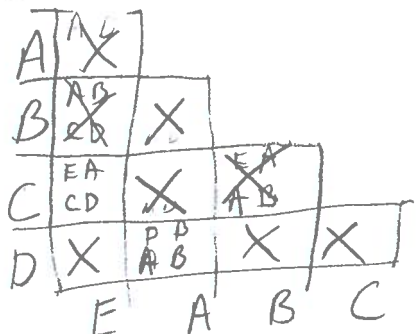| A	B	C	OUT
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	Smoke
1	0	0	1
1	0	1	Hi Z
1	1	0	0
1	1	1	0
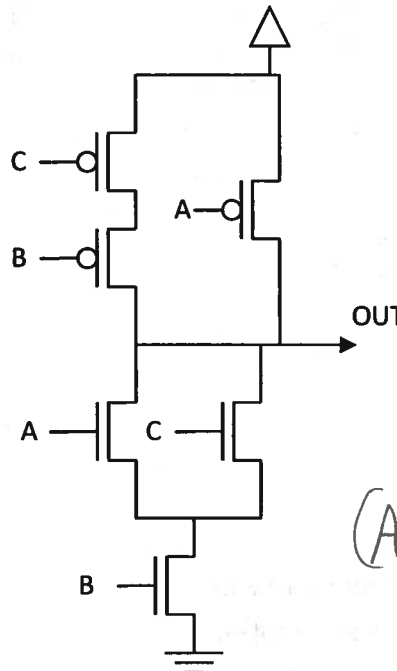
$(A+C)B$

Fill in the above truth table with either "1", "0", "Hi-Z" or "Smoke" (the last if OUT is connected to both Vcc and Ground).

2. Consider the following state table. Minimize the number of states. <u>Give your answer as a state diagram</u>. A is the initial state. **[35 points]**

State	Next State		Output (W)
	X=0	X=1	
A	A	B	0
B	A	B	1
C	E	A	1
D	D	B	0
E	C	D	1

3. Say we wish to design a memory with that where each location has 2 bits of data using the figure to the right. **[30 points]**

   a. How many addresses would you have? __128__

   b. There are _5 blanks_ in the figure. Fill them each in with values that would complete our design. Let address bits be a bus named "A" and the output be a bus named D.