Name: _____ uname: _____

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]**

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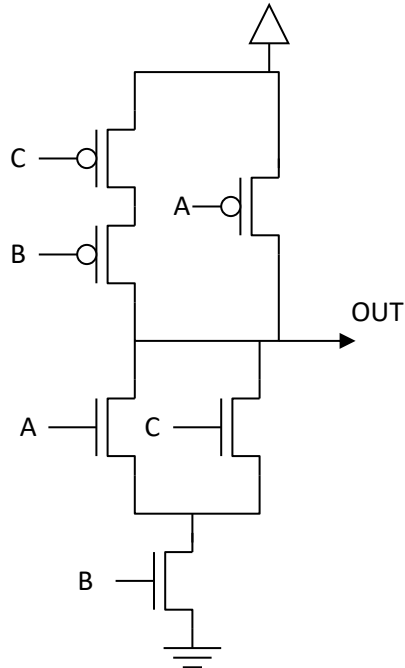
Fill in the above truth table with either "1", "0", "Hi-Z" or "Smoke" (the last if OUT is connected to both Vcc and Ground).

Quiz 4 EECS 270 Spring 2023.

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? _____

    b. There are <u>*5 blanks*</u> 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.

OE'
CS'
WE'

decoder

memory array
256bits (16x16)

mux/demux