3.27

a.

A	Z
0	0
1	1

b. The output Z remains its previous value.

c. Yes, it is.

3.29

No. The value covered cannot be recovered.

3.31

$8 * 2^3 = 64$

So the total size of memory is 64 bytes.

3.33

a. A[1:0] = 11 and WE = 0.

b. 6 address lines are needed. The addressability would be of 3 bits.

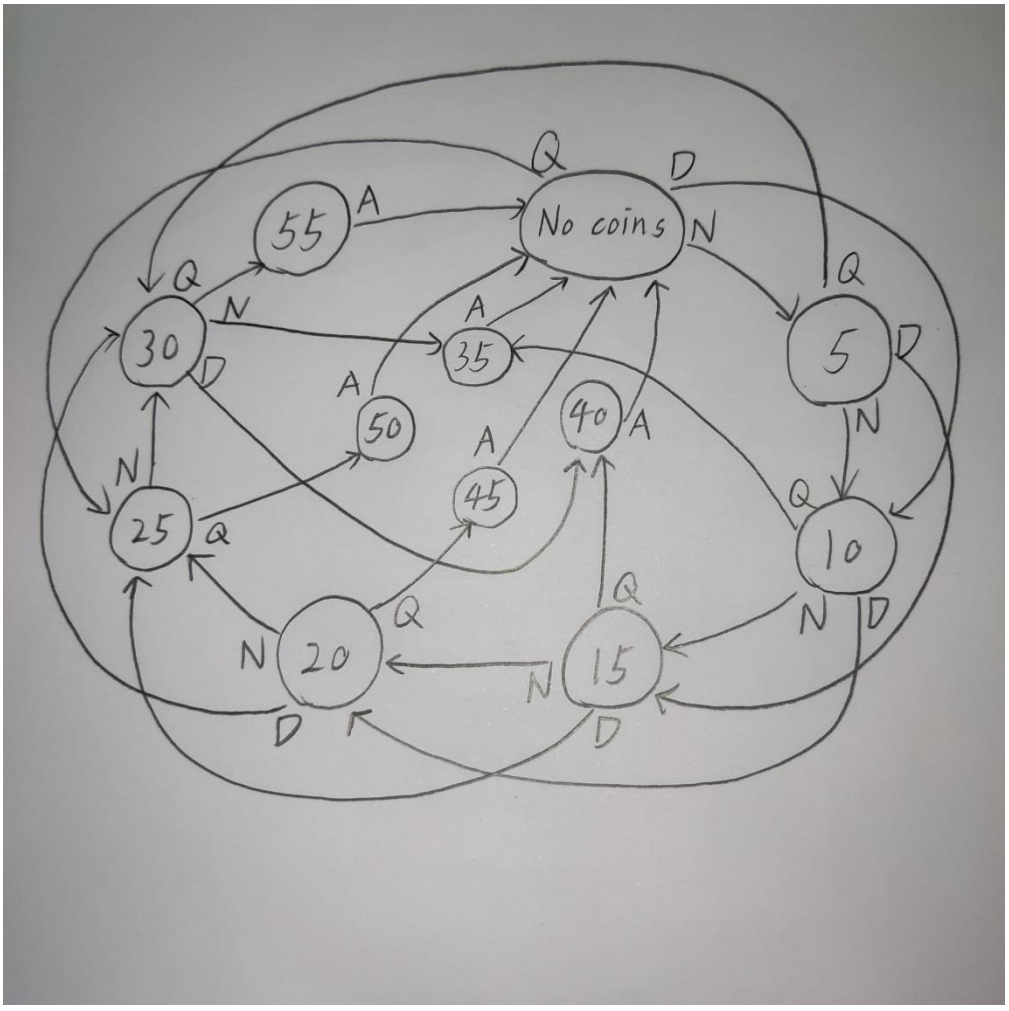
c. $2^6 – 60 = 4$. 4 additional memory locations could be added.

3.41

N: a nickel D: a dime Q: a quarter

A: any input, which means that when 35, 40, 45, 50 or 55 cents has been put in the soda controller, any coin that is put in subsequently will restart the process

If 35, 40, 45, 50 or 55 cents has been put in the soda controller, the controller will output a soda and proper change.



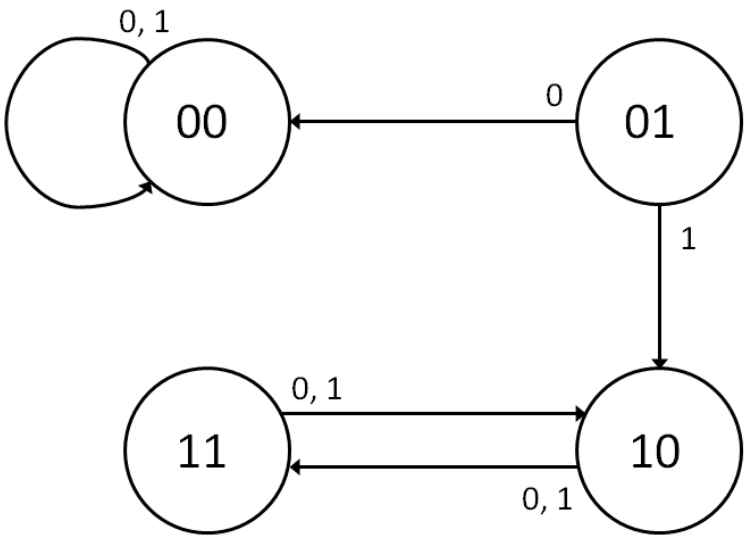
(I’m sorry that I failed to find a larger paper to draw the diagram.)

3.43

a.

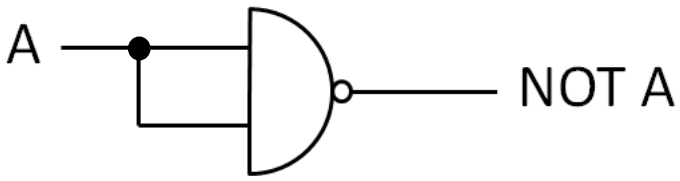
S1	S0	X	D1	D0	Z
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	0	0	1
0	1	1	1	0	1
1	0	0	1	1	1
1	0	1	1	1	1
1	1	0	1	0	1
1	1	1	1	0	1

b.

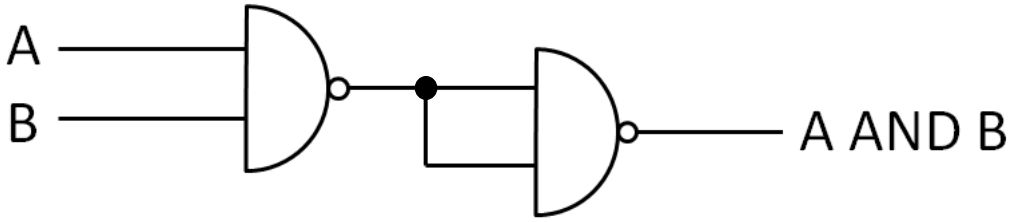


3.44

NOT function:



AND function:



OR function: