Exercise -homework-day 3

3.38

Memory address is a location in memory. Memory's addressability is the number of bits in a location

3.40

a. 4 locations

b. 4 bits

c. 0001

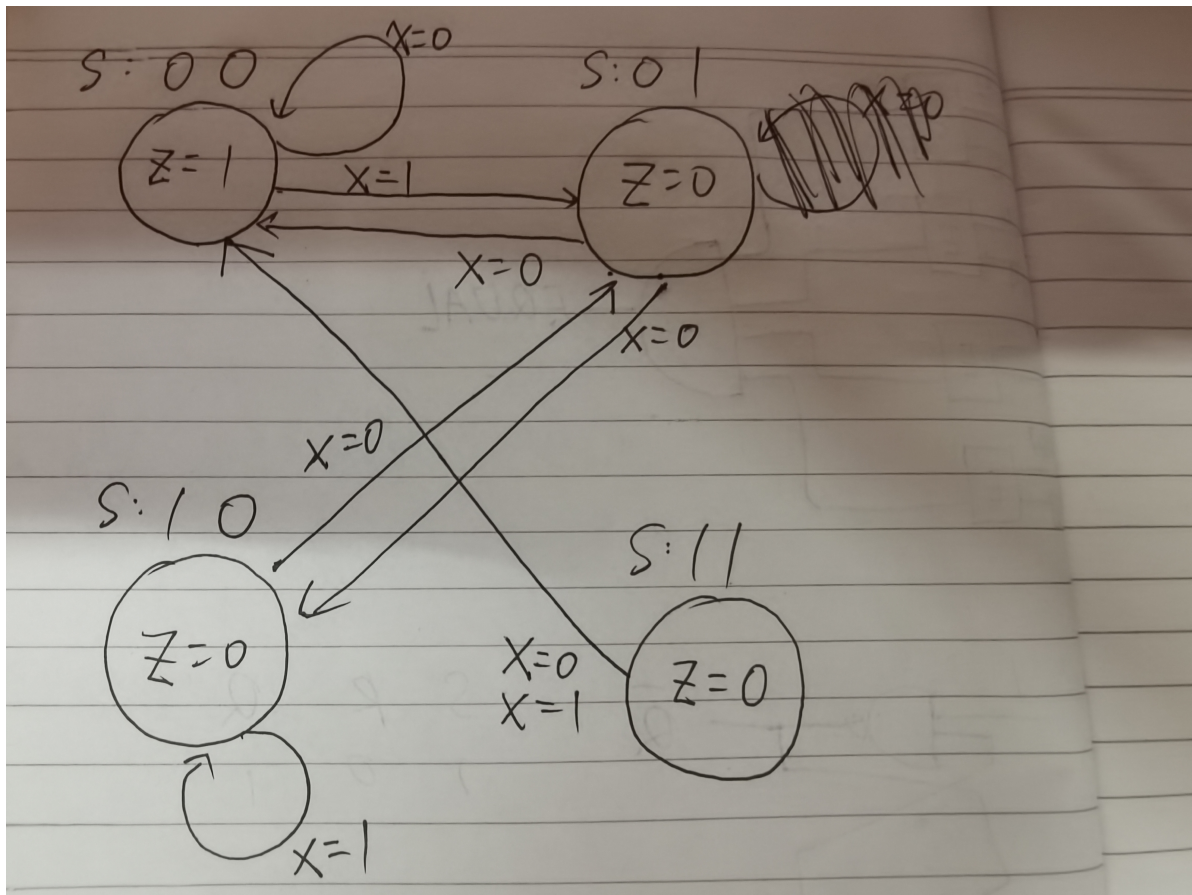## 3.53

cycle 0	cycle 1	cycle 2	cycle 3	cycle 4	cycle 5	cycle 6	cycle 7
0	1	1	1	1	0	0	0
0	1	1	0	0	1	1	0
0	1	0	1	0	1	0	1

a decreasing 3-bit counter

3.61

S1	S0	X	Z	S1'	S0'
0	0	0	1	0	0
0	0	1	1	0	1
0	1	0	0	1	0
0	1	1	0	0	0
1	0	0	1	0	0
1	0	1	0	1	0
1	1	0	0	0	0
1	1	1	0	0	0

S:00 X=0
Z=1   X=1   S:01   Z=0

X=0

X=0

X=0

S:10   Z=0

X=0   S:11

X=0
X=1   Z=0

X=1

4.1

MEMORY : Storage of information (data/program)

Processing Unit : Computation/Processing of Information

Input: Means of getting information into the computer.

Output: Means of getting information out of the computer.

Control Unit: Makes sure that all the other parts perform their tasks correctly and at the correct time.

4.7

We need 6 bits for 60 opcodes, 5 bits for registers.

Thus there are 32-6-5*2=16 bits for IMM, the range is -2^{15} ~ $(2^{15})-1$.

that is -32768 ~ 32767