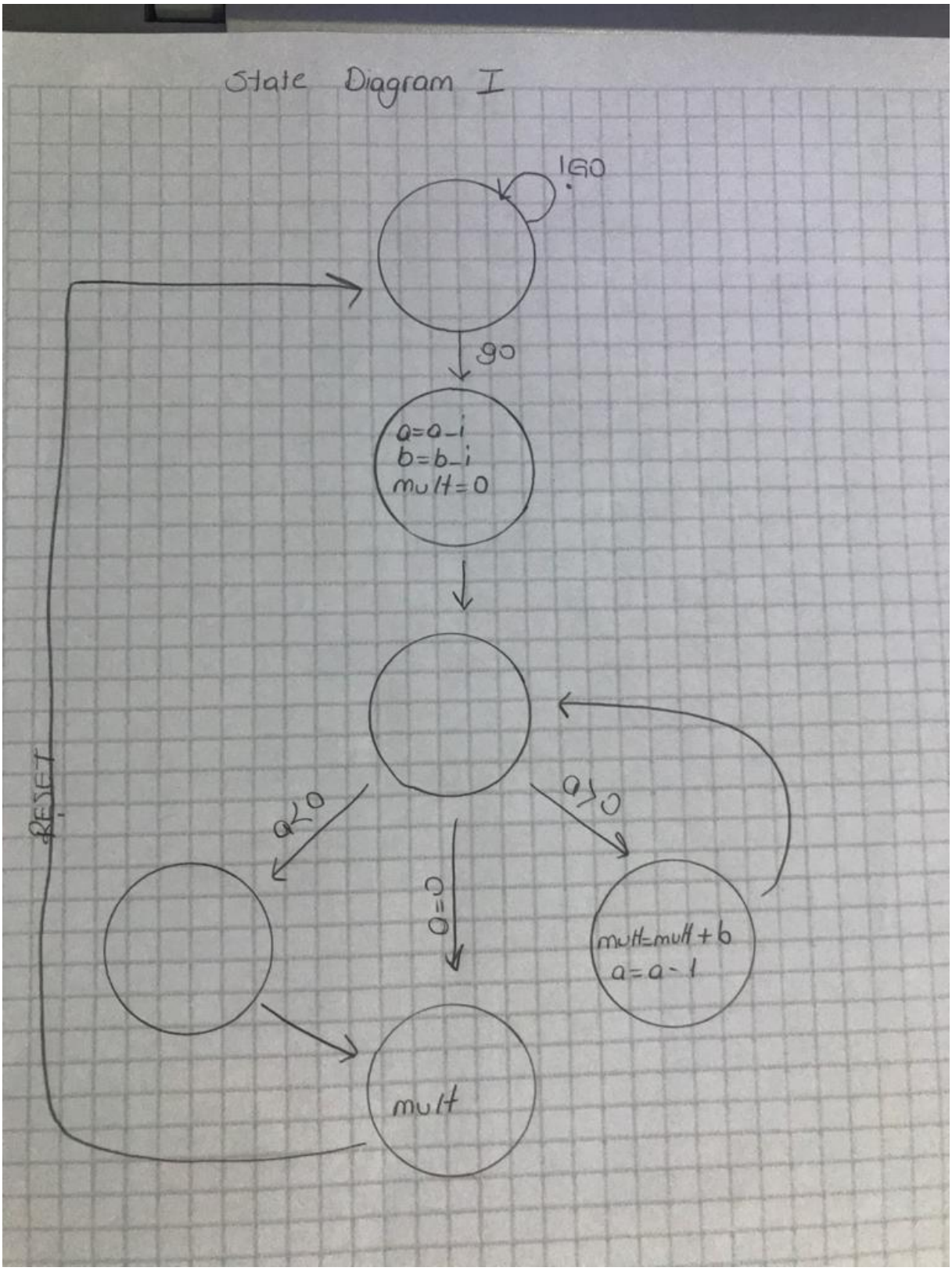
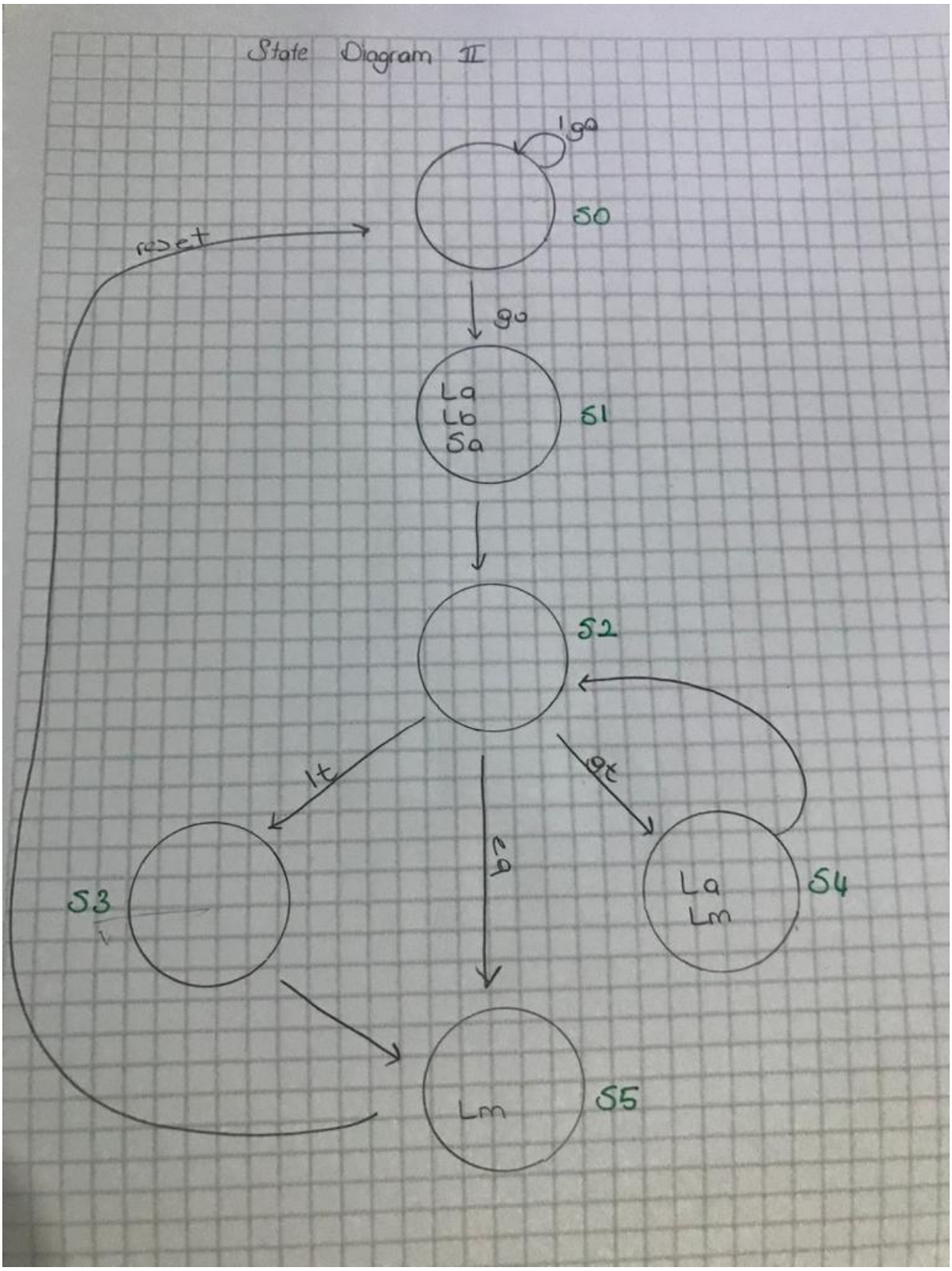

State Diagram I
!go
go
a=a_i
b=b_i
mult=0
a>0
a<0
a=0
mult=mult+b
a=a-1
mult
RESET


State Diagram II
!go
S0
reset
go
La
Lb
Sa
S1
S2
lt
gt
eq
S3
La
Lm
S4
Lm
S5

State Table

P2	P1	P0	lt	gt	eq	Go	N2	N1	N0
0	0	0	–	–	–	0	0	0	0
0	0	0	–	–	–	1	0	0	1
0	0	1	–	–	–	–	0	1	0
0	1	0	1	0	0	–	1	0	1
0	1	0	0	1	0	–	1	0	0
0	1	0	0	0	1	–	1	0	1
0	1	1	–	–	–	–	1	0	1
1	0	0	–	–	–	–	0	1	0
1	0	1	–	–	–	–	0	0	0

PS – outputs

	P2	P1	P0	La	Lb	Sa	Lm
S0	0	0	0	0	0	0	0
S1	0	0	1	1	1	1	0
S2	0	1	0	0	0	0	0
S3	0	1	1	0	0	0	0
S4	1	0	0	1	0	0	1
S5	1	0	1	0	0	0	1

La = S1 + S4

Lb = S1

Sa = S1

Lm = S4 + S5

Boolean Expression

$N2 = P2' P1 P0' . lt + P2' P1 P0' . gt + P2' P1 P0' . eq + P2' . P1 . P0$

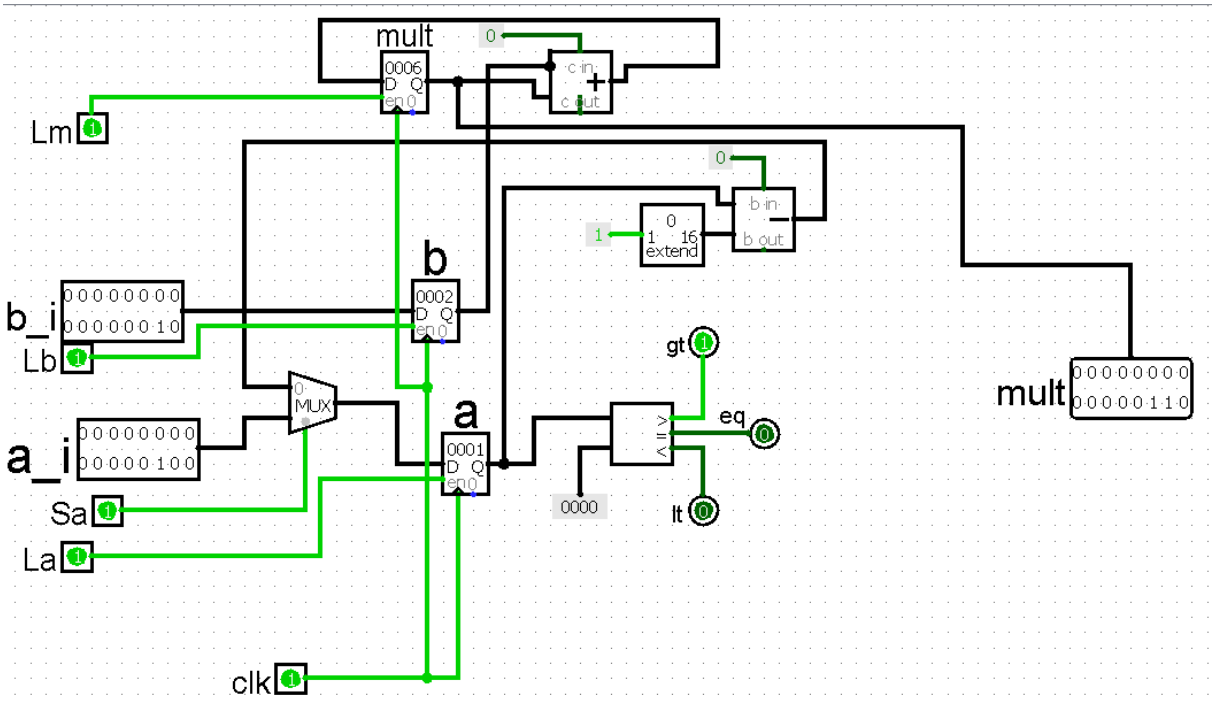
$N1 = P2' P1' P0 + P2' . P1' . P0' = P1'$

$N0 = P2' P1' P0' . go + P2' P1 . P0' . lt + P2' P1 . P0' . eq + P2' P1 . P0$

$N2 = P2' P1 (P0' (lt + gt + eq) + P0)$

$N1 = P1'$

$N0 = P2' (P1' P0' go + P1 P0' lt + P1 P0' . eq + P1 . P0)$


mult
0006
D Q
en 0
0
c in
c out
Lm
0
b in
b out
1
0
1 16
extend
b
0002
D Q
en 0
b_i
0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0
Lb
gt
mult
0 0 0 0 0 0 0 0
0 0 0 0 0 1 1 0
0
MUX
a
0001
D Q
en 0
eq
a_i
0 0 0 0 0 0 0 0
0 0 0 0 0 1 0 0
0000
lt
Sa
La
clk