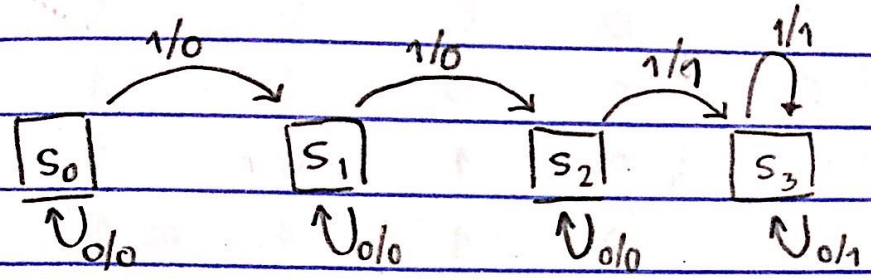
Hw 1 Sittanat Palakawong Na Ayudthaya

6310545400

1.



Truth table

CS	In	NS	out
00	0	00	0
00	1	01	0
01	0	01	0
01	1	10	0
10	0	10	0
10	1	11	1
11	0	11	1
11	1	11	1

k-map

NS_1

$In \backslash CS_1CS_0$	00	01	11	10
0	0	0	1	1
1	0	1	1	1

NS_0

$In \backslash CS_1CS_0$	00	01	11	10
0	0	1	1	0
1	1	0	1	1

out

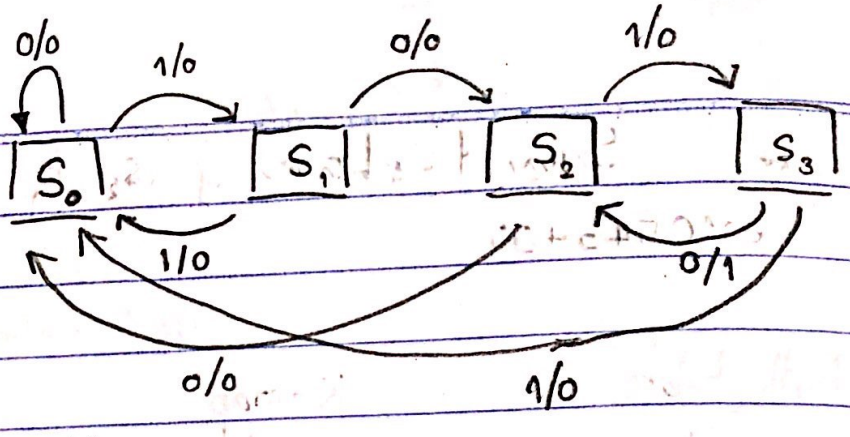
$In \backslash CS_1CS_0$	00	01	11	10
0	0	0	1	0
1	0	0	1	1

$\min N_{S_1} \rightarrow C_{S_1} + C_{S_0} I_n$

$\min N_{S_0} \rightarrow C_{S_0} \bar{I_n} + C_{S_1} I_n$

$\min out \rightarrow C_{S_1} C_{S_0} + C_{S_1} I_n$

2.



Truth table

CS	In	Ns	out
00	0	00	0
00	1	01	0
01	0	10	0
01	1	00	0
10	0	00	0
10	1	11	0
11	0	10	1
11	1	00	0

K-map

N_{S_1}

I_n \ $C_{S_1}C_{S_0}$	00	01	11	10
0	0	1	1	0
1	0	0	0	1

N_{S_0}

I_n \ $C_{S_1}C_{S_0}$	00	01	11	10
0	0	0	0	0
1	1	0	0	1

Out

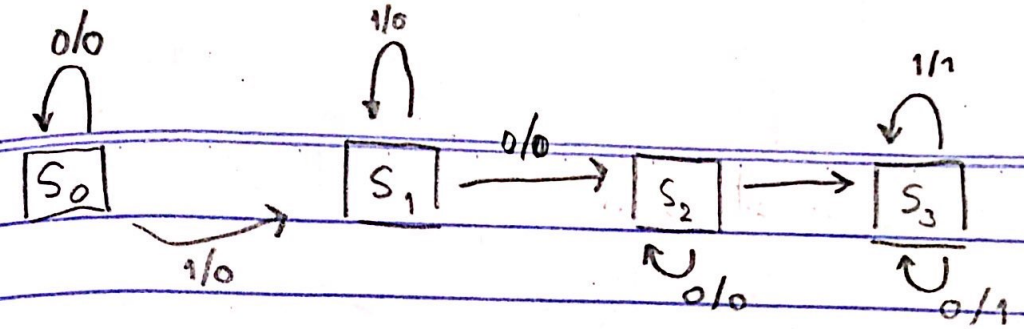
I_n \ $C_{S_1}C_{S_0}$	00	01	11	10
0	0	0	1	0
1	0	0	0	0

N_{S_1} min $= \bar{I_n} C_{S_0} + C_{S_1} \bar{C_{S_0}} I_n$

N_{S_0} min $= \bar{C_{S_0}} I_n$

Out min $= C_{S_1} C_{S_0} \bar{I_n}$

3.



Truth table

CS	In	NS	Out
00	0	00	0
00	1	01	0
01	0	10	0
01	1	01	0
10	0	10	0
10	1	11	1
11	0	11	1
11	1	11	1

K-map

$In \backslash CS_1CS_0$	00	01	11	10
0	0	1	1	1
1	0	0	1	1

$In \backslash CS_1CS_0$	00	01	11	10
0	0	0	1	0
1	1	1	1	1

$In \backslash CS_1CS_0$	00	01	11	10
0	0	0	1	0
1	0	0	1	1

$Out \rightarrow CS_1CS_0 + CS_1 In$

$N_{S1} \rightarrow C\bar{S}_1CS_0 + CS_1$

$N_{S0} \rightarrow \bar{In} + CS_1CS_0$