

Name :- Prasann Viswanathan

10 - Pen paper

Roll :- 190070047

15 - Code.

Course :- Digital Circuit Lab

0 - Video.

Course code :- EE 214

Meet number - 5.

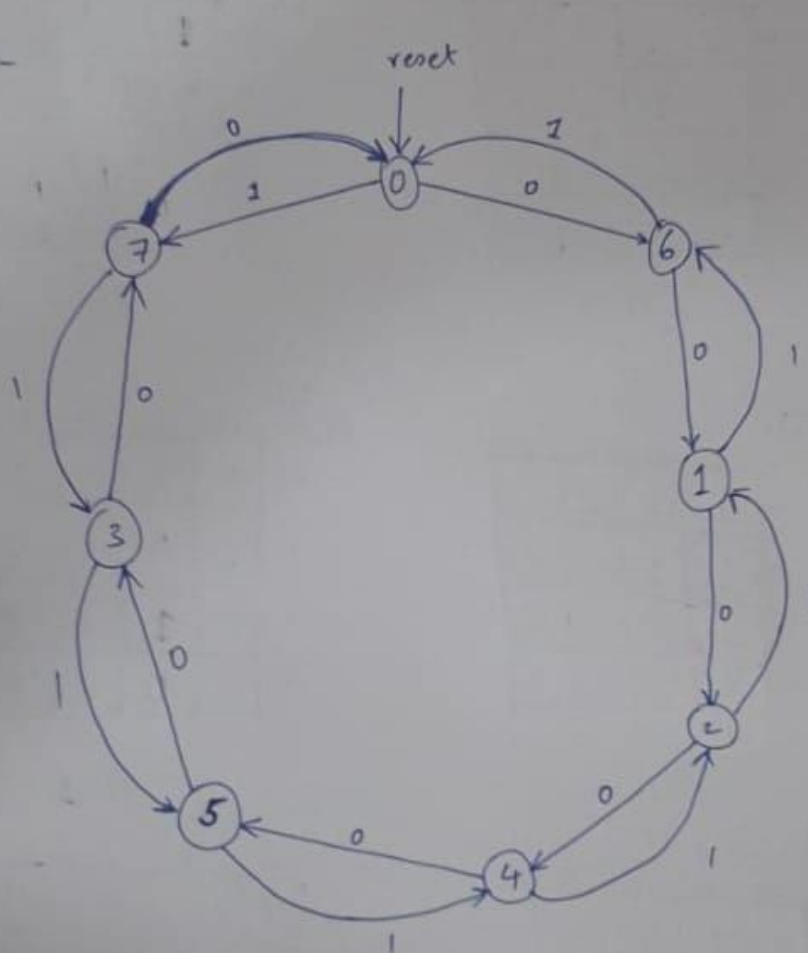
Sequence := 0 6 1 2 4 5 3 7

1.

reset

(up/down) - control input.

Mealy :-



$N_1$   
 $\Rightarrow$  2  
3  
6  
7

$N_2$   
 $\Rightarrow$  1  
3  
5  
7

Present state

$= P_2 P_1 P_0$

Next state :=  $N_2 N_1 N_0$

00 - Down

01 - Down

10

11 - Reset

Note :- The given Mealy machine is already  
a moore machine as outputs are  
deterministic and the next state itself.

Moore Machine :-

$$(P_2, P_1, P_0) \xrightarrow{(I, I_0)} (N_2, N_1, N_0)$$

$I, I_0$	
0 0	Down
0 1	Down
1 0	Reset
1 1	Result

 $N_2 :=$ 

$P_1 P_0$	$I, I_0$	00	01	11	10
00	1	1	0	0	
01	0	1	0	0	
11	1	1	0	0	
10	1	0	0	0	

$P_2 = 0$

	$I_1 I_0$	00	01	11	10
$P_1 P_0$	00	1	0	0	0
	01	0	1	0	0
	11	0	0	0	0
	10	0	0	0	0

$P_2 = 1$

 $N_1 :=$ 

$P_1, P_0$	$I, I_0$	00	01	11	10
00	1	1	0	0	
01	1	1	0	0	
11	1	0	0	0	
10	0	0	0	0	

$P_2 = 0$

$P_1, P_0$	$I, I_0$	00	01	11	10
00	0	1	0	0	
01	1	0	0	0	
11	0	1	0	0	
10	0	0	0	0	

 $N_0 :=$ 

	$I, I_0$	00	01	11	10
$P_1, P_0$	00	0	1	0	0
	01	0	0	0	0
	11	1	1	0	0
	10	0	1	0	0

$P_2 = 0$

		00	01	11	10
I, I <sub>0</sub>	00	1	0	0	0
	01	1	0	0	0
	11	0	1	0	0
	10	1	0	0	0

$P_2 = 1$

Minimized Expression:-

$$N_2 := \bar{I}_1 \bar{I}_0 \bar{P}_2 P_1 + \bar{I}_1 I_0 \bar{P}_2 P_0 \\ + \bar{P}_2 \bar{P}_1 \bar{P}_0 \bar{I}_1 + \bar{P}_1 \bar{P}_0 \bar{I}_1 \bar{I}_0 + \bar{P}_1 P_0 \bar{I}_1 I_0$$

$$N_1 := \bar{P}_2 \bar{P}_1 \bar{I}_1 + \bar{P}_2 P_0 \bar{I}_1 \bar{I}_0 \\ + \bar{P}_1 P_0 \bar{I}_1 \bar{I}_0 + \bar{P}_1 \bar{P}_0 \bar{I}_1 I_0 + P_2 P_1 P_0 \bar{I}_1 \bar{I}_0$$

$$N_0 := \bar{P}_2 P_1 P_0 \bar{I}_1 + \bar{P}_2 \bar{P}_0 \bar{I}_1 I_0 \\ + P_2 \bar{P}_1 \bar{I}_1 \bar{I}_0 + P_2 \bar{P}_0 \bar{I}_1 \bar{I}_0 \\ + P_1 P_0 \bar{I}_1 I_0$$

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Output state = Next state.