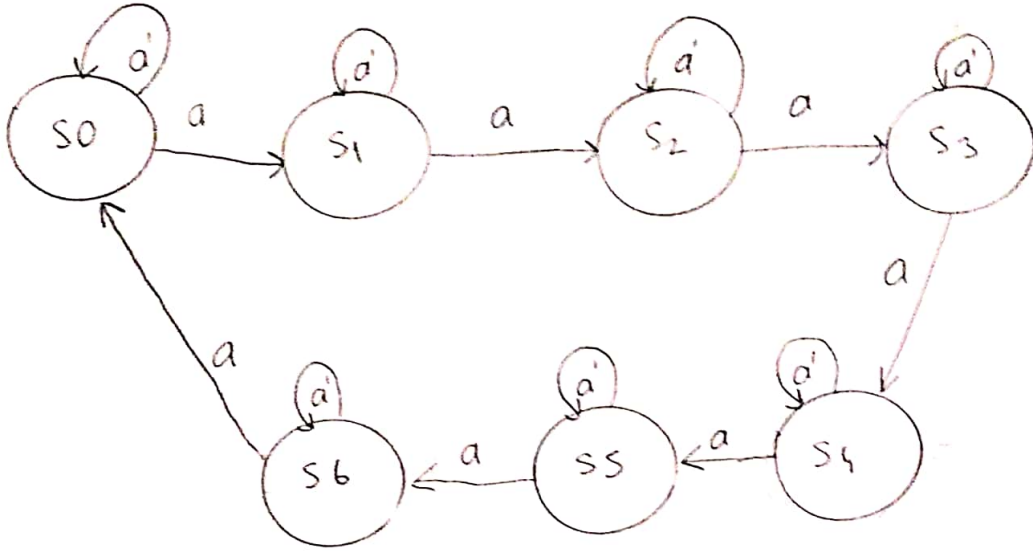


1)



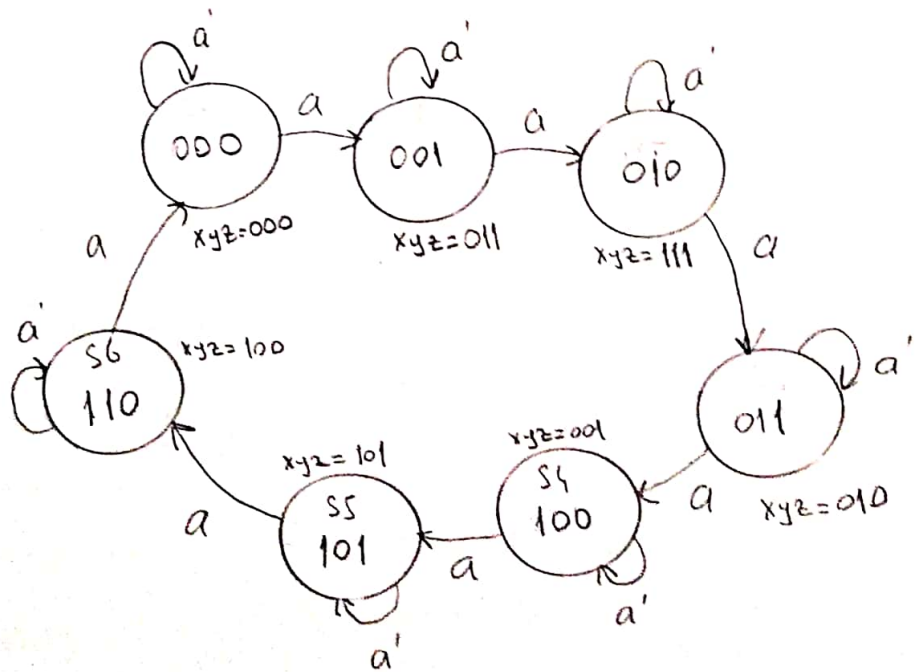
\* 6 states (3 registers)

a input

x, y, z output

\* Encode states

	$s_2$	$s_1$	$s_0$
$S_0$	0	0	0
$S_1$	0	0	1
$S_2$	0	1	0
$S_3$	0	1	1
$S_4$	1	0	0
$S_5$	1	0	1
$S_6$	1	1	0



# State table

inputs				outputs					
$S_2$	$S_1$	$S_0$	$a$	$x$	$y$	$z$	$n_2$	$n_1$	$n_0$
0	0	0	0	0	0	0	0	0	0
0	0	0	1	0	0	0	0	0	1
0	0	1	0	0	1	1	0	0	1
0	0	1	1	0	1	1	0	1	0
0	1	0	0	1	1	1	0	1	0
0	1	0	1	1	1	1	0	1	1
0	1	1	0	0	1	0	0	1	1
0	1	1	1	0	1	0	1	0	0
1	0	0	0	0	0	1	1	0	0
1	0	0	1	0	0	1	1	0	1
1	0	1	0	1	0	1	1	0	1
1	0	1	1	1	0	1	1	1	0
1	1	0	0	1	0	0	1	1	0
1	1	0	1	1	0	0	0	0	0
1	1	1	0	0	0	0	0	0	0
1	1	1	1	0	0	0	0	0	0

} unwanted

$$n_2 = S_2' S_1 S_0 a + S_2 S_1' S_0' a' + S_2 S_1' S_0 a + S_2 S_1' S_0' a' + S_2 S_1' S_0 a + S_2 S_1' S_0' a'$$

$$n_1 = S_2' S_1' S_0 a + S_2' S_1' S_0' a' + S_2' S_1 S_0' a + S_2' S_1 S_0 a' + S_2 S_1' S_0 a + S_2 S_1 S_0' a'$$

$$n_0 = S_2' S_1' S_0' a + S_2' S_1' S_0 a' + S_2' S_1 S_0' a + S_2' S_1 S_0 a' + S_2 S_1' S_0 a + S_2 S_1 S_0' a'$$

$$x = S_2' S_1' S_0' a + S_2' S_1 S_0' a + S_2 S_1' S_0' a + S_2 S_1 S_0 a + S_2 S_1 S_0' a + S_2 S_1' S_0 a'$$

$$y = S_2' S_1' S_0' a + S_2' S_1 S_0 a + S_2 S_1 S_0' a + S_2 S_1 S_0 a + S_2 S_1 S_0' a + S_2 S_1 S_0 a'$$

$$z = S_2' S_1' S_0' a + S_2' S_1 S_0 a + S_2 S_1 S_0' a + S_2 S_1 S_0 a + S_2 S_1 S_0' a + S_2 S_1 S_0 a' + S_2 S_1 S_0 a'$$

K-map for  $\Pi_2$

$s_2s_1 \backslash s_0a$	00	01	11	10
00				
01			1	
11	1			
10	1	1	1	1

$$\Pi_2 = s_2's_1s_0a + s_2s_1' + s_2s_0'a'$$

K map for  $\Pi_1$

$s_2s_1 \backslash s_0a$	00	01	11	10
00			1	
01	1	1		1
11	1			
10			1	

$$\Pi_1 = s_2's_1s_0' + s_1's_0'a' + s_1's_0a + s_2's_1a'$$

K map for  $\Pi_0$

$s_2s_1 \backslash s_0a$	00	01	11	10
00		1		1
01		1		1
11				
10		1		1

$$\Pi_0 = s_2's_0'a + s_1's_0'a + s_2's_0a' + s_1's_0a'$$



K map for x

$S_2 S_1 \backslash S_0$	00	01	11	10
00				
01	1	1		
11	1	1		
10			1	1

$$x = S_1 S_0' + S_2 S_1' S_0$$

K map for y

$S_2 S_1 \backslash S_0$	00	01	11	10
00			1	1
01	1	1	1	1
11				
10				

$$y = S_2' S_1 + S_2' S_0$$

K map for z

$S_2 S_1 \backslash S_0$	00	01	11	10
00			1	1
01	1	1		
11				
10	1	1	1	1

$$z = S_2 S_1' + S_2' S_1 S_0' + S_2' S_1' S_0$$

