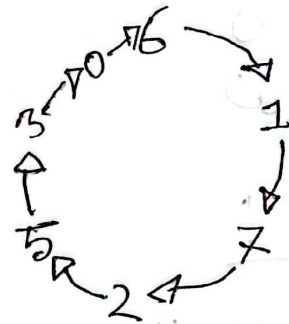


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$$113 \div 5 = 3$$

6-1-7-2-5-3-0

State diagram:



state table:

PS	NS
6	1
1	7
7	2
2	5
5	3
3	0
0	6

Transition Table:

$Y_2^{PS}$	$Y_1$	$Y_0$	$Y_2^{NS}$	$Y_1$	$Y_0$
1	1	0	0	0	1
0	0	1	1	1	1
1	1	1	0	1	0
0	1	0	1	0	1
1	0	1	0	1	1
0	1	1	0	0	0
0	0	0	1	1	0

Excitation Table:

$Y_2$	$Y_1$	$Y_0$	$J_2, K_2$	$J_1, K_1$	$J_0, K_0$
1	1	0	— 1	— 1	1 —
0	0	1	1 —	1 —	— 0
1	1	1	— 1	— 0	— 1
0	1	0	1 —	— 1	1 —
1	0	1	— 1	1 —	— 0
0	1	1	0 —	— 1	— 1
0	0	0	1 —	1 —	0 —

#number of Flip Flop =  $\lceil \log_2 N \rceil = 3$

K-map:

$$J_2$$

$y_1 y_0$	00	01	11	10
0	1	1	0	1
1	X	X	X	X

$$J_2 = \overline{y_1} + \overline{y_0}$$

$$K_2$$

$y_1 y_0$	00	01	11	10
0	X	X	X	X
1	X	1	1	1

$$K_2 = 1$$

$$J_1$$

$y_1 y_0$	00	01	11	10
0	1	1	X	X
1	X	1	X	X

$$J_1 = 1$$

$$K_1$$

$y_1 y_0$	00	01	11	10
0	X	X	1	1
1	X	X	0	1

$$K_1 = \overline{y_2} + \overline{y_0}$$

$$J_0$$

$y_1 y_0$	00	01	11	10
0	0	X	X	1
1	X	X	X	1

$$J_0 = y_1$$

$$K_0$$

$y_1 y_0$	00	01	11	10
0	X	0	1	X
1	X	0	1	X

$$K_0 = y_1$$