Name: Nafincan Leo

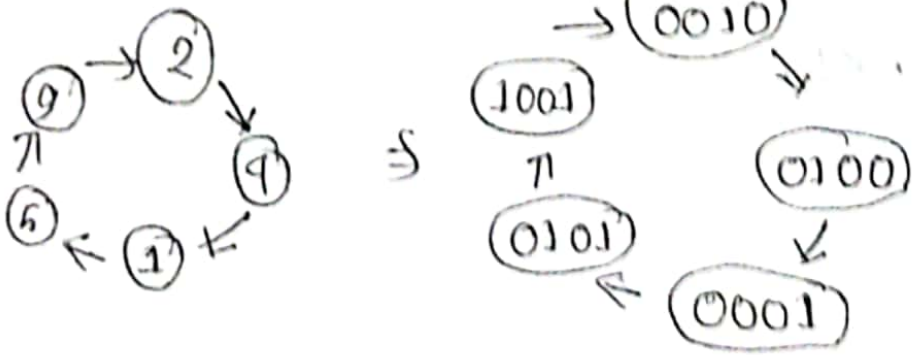
Id : 2042195-1

*Here, A = 4
B = 2
C = 1
D = 9
E = 5

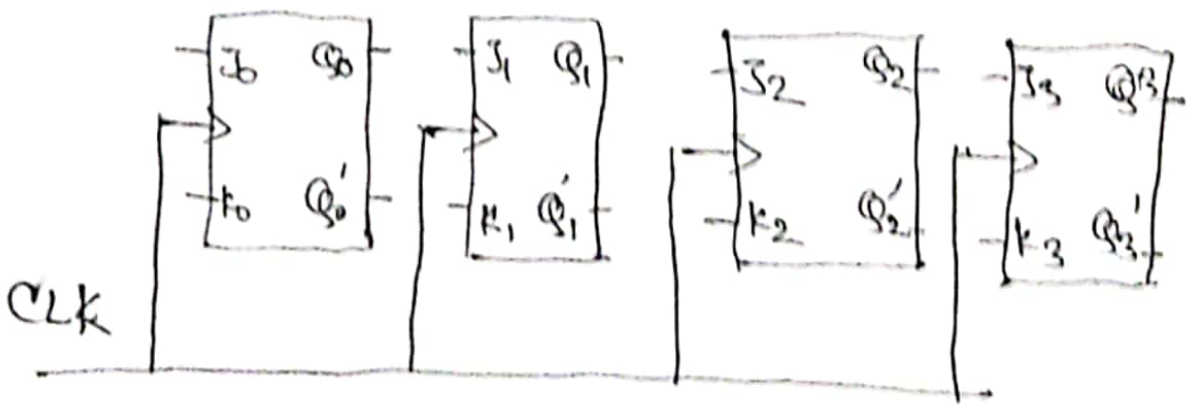
sequence →

B → A → B → E → D → B

Decimal and Binary sequence:-



Number of flip flop:-



Sub :

Day
Time : Date : / /

Counter table :→

ID	Present state				Next state											
	Q_3	Q_2	Q_1	Q_0	Q_3	Q_2	Q_1	Q_0	J_0	K_0	J_1	K_1	J_2	K_2	J_3	K_3
2	0	0	1	0	0	1	0	0	0	X	X	1	1	X	0	X
9	0	1	0	0	0	0	0	1	1	X	0	X	X	1	0	X
1	0	0	0	1	0	1	0	1	X	0	0	X	1	X	0	X
5	0	1	0	1	1	0	0	1	X	0	0	X	X	1	1	X
9	1	0	0	1	0	0	1	0	X	1	1	X	0	X	X	1

Transition table :-

$Q_P \to Q_N$	J		K		Comment
0→0	0	0	0	X	No change
	0		1		Reset
0→1	0	1	0	X	set
	1		1		Toogle
1→0	0	X	1	1	Reset
	1		1		Toogle
1→1	0	X	1	0	No change
	1		0		Set

$Q_P \to Q_N$	J	K
0→0	0	X
0→1	1	X
1→0	X	1
1→1	X	0

Filling up K-maps:

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	X	X	0
01	1	X	X	X
11	X	X	X	X
10	X	X	X	X

$J_0 = Q_3 Q_1'$

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	0	X	X
01	X	0	X	X
11	X	X	X	X
10	X	1	X	X

$K_0 = Q_3$

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	0	X	X
01	0	0	X	X
11	X	X	X	X
10	X	1	X	X

$J_1 = Q_2' Q_1$

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	X	X	1
01	X	X	X	X
11	X	X	X	X
10	X	X	X	X

$K_1 = 1$

Sub :

Day

Time : Date : / /

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	1	X	1
01	X	X	X	X
11	X	X	X	X
10	X	0	X	X

$J_2 = Q_0Q_1$

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	X	X	X
01	1	1	X	X
11	X	X	X	X
10	X	X	X	X

$K_2 = 1$

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	0	X	0
01	0	1	X	X
11	X	X	X	X
10	X	X	X	X

$J_3 = Q_3'Q_0$

Q_3Q_2 \ Q_0Q_1	00	01	11	10
00	X	X	X	X
01	X	X	X	X
11	X	X	X	X
10	X	1	X	X

$K_3 = 1$

Final output Connections:

$J_0 = Q_0' Q_1'$. $K_0 = Q_3$

$J_1 = Q_2' Q_1$ $K_1 = 1$

$J_2 = Q_0 Q_1$ $K_2 = 1$

$J_3 = Q_3' Q_0$ $K_3 = 1$

Connecting the output connection in the diagram: