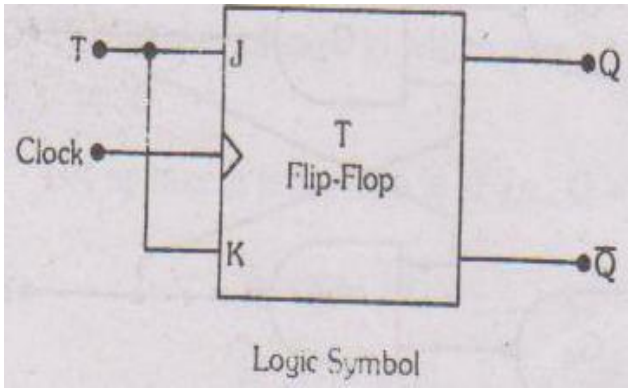
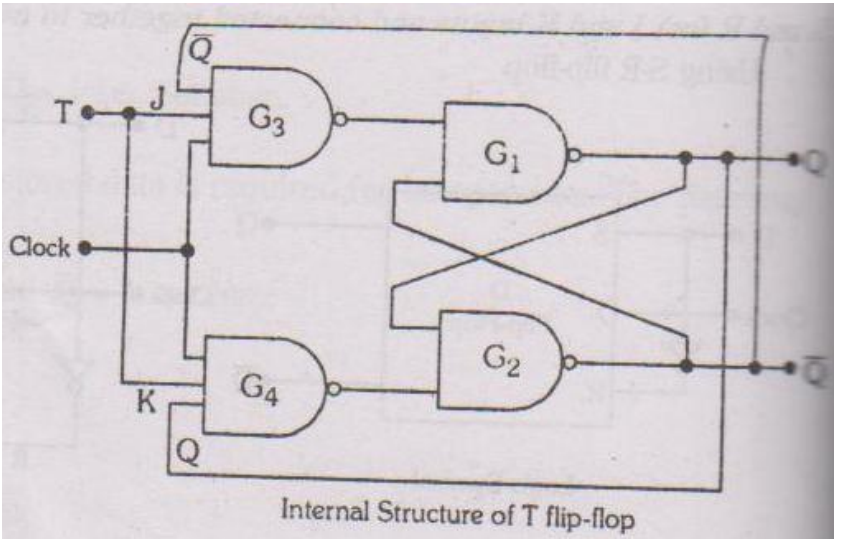
T Flip Flop(Toggle flip flop)

- It can be designed from J K flip flop by connecting an (J and K)

In this input together to make a single input as shown in fig



Logic Symbol



Internal Structure of T flip-flop

Flip Flop conversions

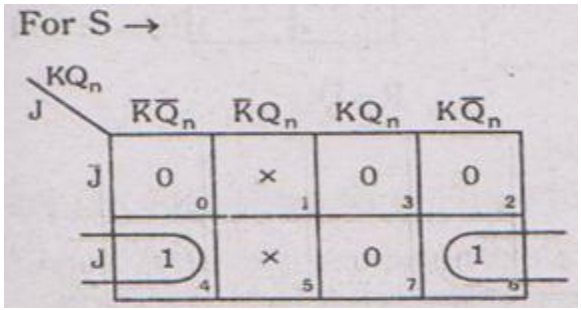
conversions of one flip flop is possible by adding some extra gate.

S R to J K flip flop conversions

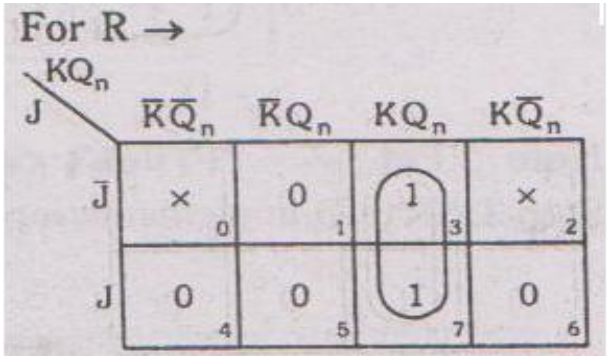
Step 1 : The excitation table

Inputs		Present State	Next State	Flip-Flop Inputs	
J	K	Q_n	Q_{n+1}	S	R
0	0	0	0	0	X
0	0	1	1	X	0
0	1	0	0	0	X
0	1	1	0	0	1
1	0	0	1	1	0
1	0	1	1	X	0
1	1	0	1	1	0
1	1	1	0	0	1

Step 2 : K map minimization



$\therefore S = J\bar{Q}_n$



$\therefore R = KQ_n$

Step 3 : S R to J K flip flop implementation

$$\therefore\ S = J\bar{Q}_n$$

$$\therefore\ R = KQ_n$$