1) SR Flip Flop using T Flip flop

Truth Table of SR Flip-flop

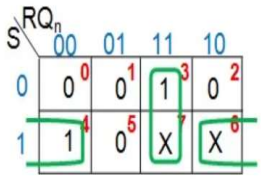
Inputs		Outputs	
		Present State	Next State
S	R	Q_n	Q_{n+1}
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	invalid	
1	1	invalid	

SR Inputs		Outputs		T Input
		Present State	Next State	
S	R	Q_n	Q_{n+1}	T
0	0	0	0	0
0	0	1	1	0
0	1	0	0	0
0	1	1	0	1
1	0	0	1	1
1	0	1	1	0
1	1	invalid		X
1	1	invalid		X

T to SR Conversion Table

Excitation Table of T Flip-flop

Outputs		Input
Present State	Next State	
Q_n	Q_{n+1}	T
0	0	0
0	1	1
1	0	1
1	1	0



$$T = S\bar{Q}_n + RQ_n$$

2) SR Flip flop using JK Flip Flop

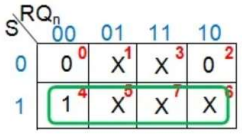
Truth Table of SR Flip-flop

Inputs		Outputs	
		Present State	Next State
S	R	Q_n	Q_{n+1}
0	0	0	0
0	0	1	1
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	1
1	1	invalid	
1	1	invalid	

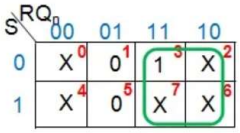
SR Inputs		Outputs		JK Inputs	
		Present State	Next State		
S	R	Q_n	Q_{n+1}	J	K
0	0	0	0	0	X
0	0	1	1	X	0
0	1	0	0	0	X
0	1	1	0	X	1
1	0	0	1	1	X
1	0	1	1	X	0
1	1	invalid		X	X
1	1	invalid		X	X

Excitation Table of JK Flip-flop

Outputs		Inputs	
Present State	Next State		
Q_n	Q_{n+1}	J	K
0	0	0	X
0	1	1	X
1	0	X	1
1	1	X	0



$$J = S$$



$$K = R$$