

Conversion for Flip-Flops

Excitation Table

Q_N	Q_{N+1}	S	R	J	K	D	T
0	0	0	X	0	X	0	0
0	1	1	0	1	X	1	1
1	0	0	1	X	1	0	1
1	1	X	0	X	0	1	0

Converting Flip-Flops

Here we will discuss the steps that one must use to convert one given flip-flop to another one. Let us assume that we have the required flip-flops that are to be constructed using the sub-flip-flops:

1. Drawing of the truth of the required flip-flop.
2. Writing of the corresponding outputs of those sub-flip-flops that are to be used from the given excitation table.
3. Drawing of the K-Maps using the required inputs of the flip-flops and then obtaining the excitation functions for the inputs of the sub-flip-flops.
4. Construction of the logic diagram in accordance with the functions that we have obtained.

i) Conversion of SR to JK Flip-Flop

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

Excitation Functions

$S = JQ_N'$

	KQ_N		
J			
	0	X	0
	1	X	0

$R = KQ_N$

	KQ_N		
	X	0	1
	0	0	1
	X		0

