5.1

(b)

$R = (D + C')' = D'C$

$s = (D' + C')' = D C$

C(En)	D	S	R	Next state of Q
0	X	0	0	No change
1	0	0	1	0, reset state
1	1	1	0	1, set state

5.2

$D = JQ' + K'Q$

5.6

$xy' + xA$
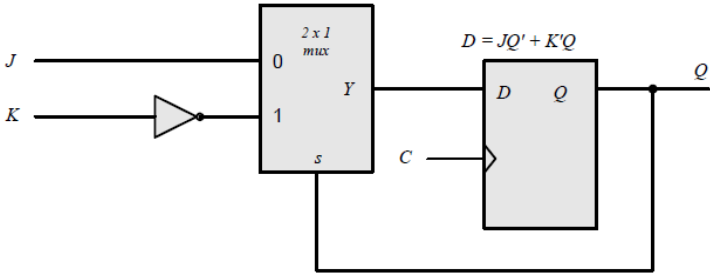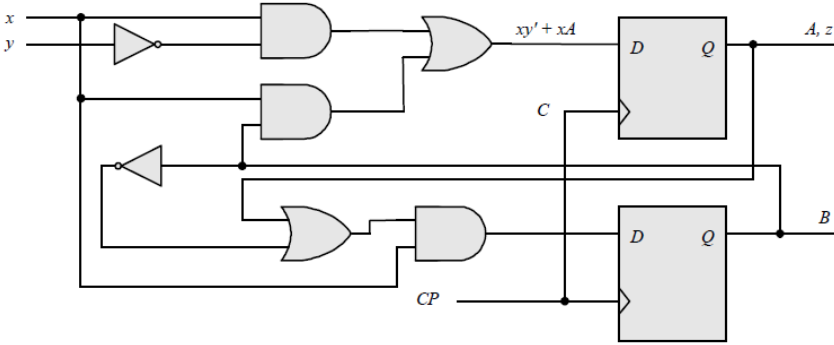
(b)

Present State		Input		Next State		Output
A	B	x	y	A	B	z
0	0	0	0	0	0	0
0	0	0	1	0	0	0
0	0	1	0	1	1	0
0	0	1	1	0	1	0
0	1	0	0	0	0	0
0	1	0	1	0	0	0
0	1	1	0	1	0	0
0	1	1	1	1	0	0
1	0	0	0	0	0	1
1	0	0	1	0	0	1
1	0	1	0	1	1	1
1	0	1	1	0	1	1
1	1	0	0	0	0	1
1	1	0	1	0	0	1
1	1	1	0	1	1	1
1	1	1	1	1	1	1

(c)
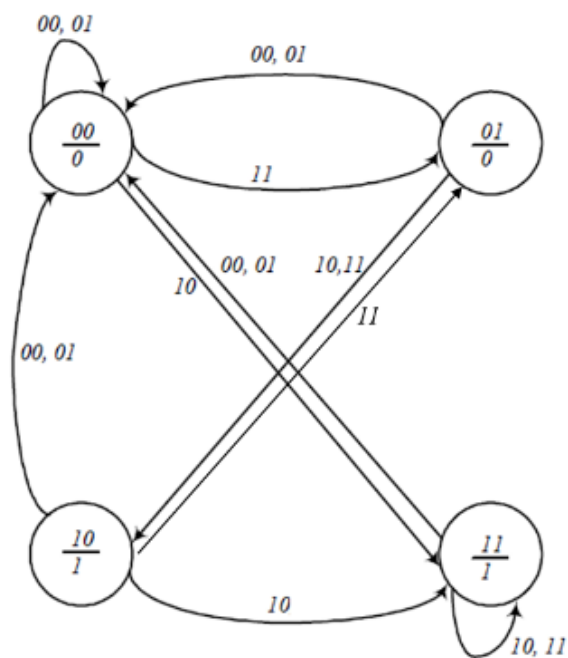
5.8   A counter with a repeated sequence of 00, 01, 10.

Present state		Next state		FF Inputs	
A	*B*	*A*	*B*	T_A	T_B
0	0	0	1	0	1
0	1	1	0	1	1
1	0	0	0	1	0
1	1	0	0	1	1

$$T_A = A + B$$
$$T_B = A' + B$$

Repeated sequence:
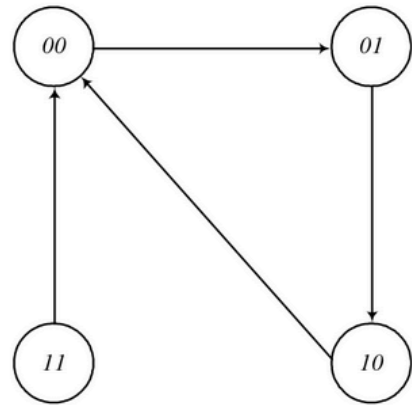
$$\rightarrow 00 \rightarrow 01 \rightarrow 10 \rightarrow$$

5.10   **(a)**
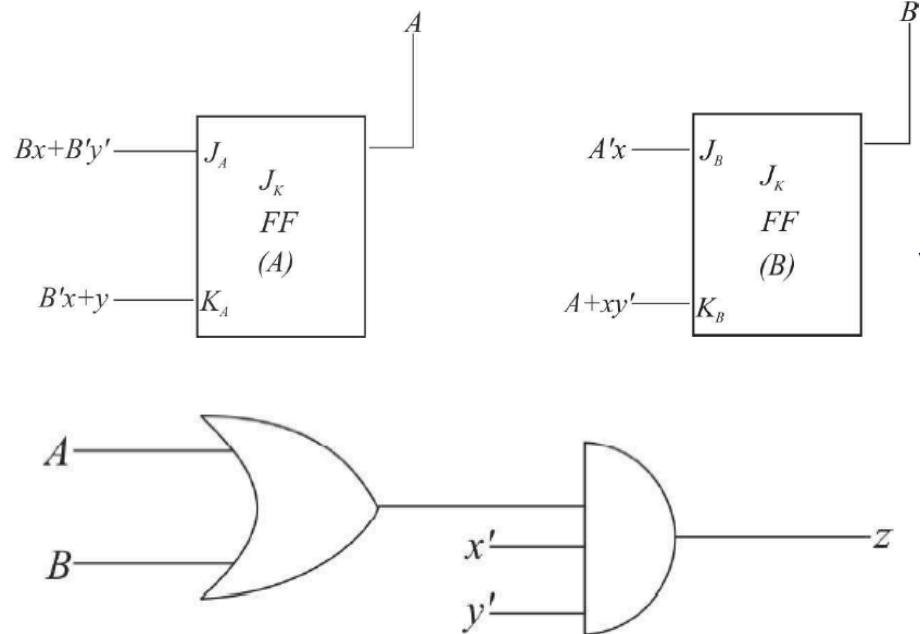
(b) State Table:

$A(t)$	$B(t)$	x	y	$A(t+1)$	$B(t+1)$	z
0	0	0	0	1	0	0
0	0	0	1	0	0	0
0	0	1	0	1	1	0
0	0	1	1	0	1	0
0	1	0	0	0	1	1
0	1	0	1	0	1	0
0	1	1	0	1	0	0
0	1	1	1	1	1	0
1	0	0	0	1	0	1
1	0	0	1	0	0	0
1	0	1	0	0	0	0
1	0	1	1	0	0	0
1	1	0	0	1	0	1
1	1	0	1	0	0	0
1	1	1	0	1	0	0
1	1	1	1	0	0	0