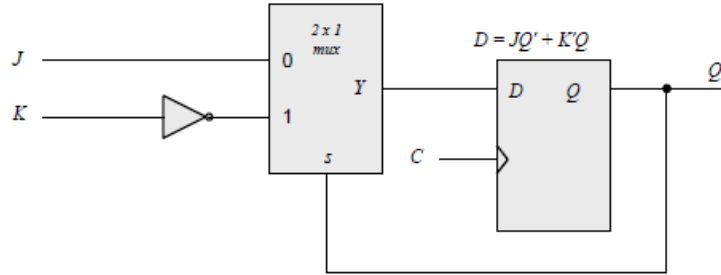
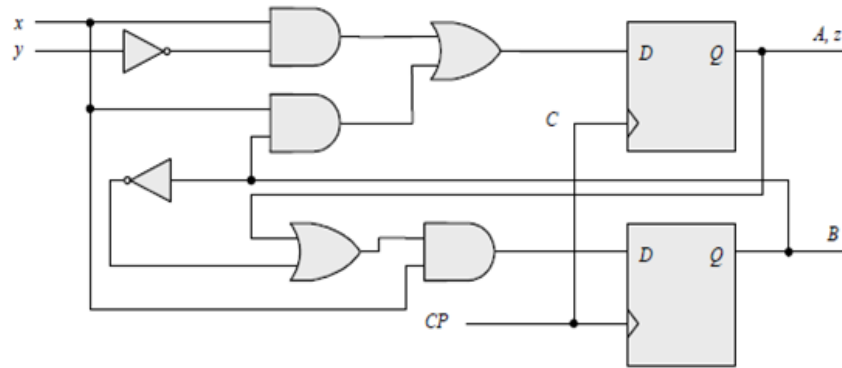


**ITI1100C/ITI1500**  
**Assignment/Devoir # 5**  
**SOLUTIONS**

5.2



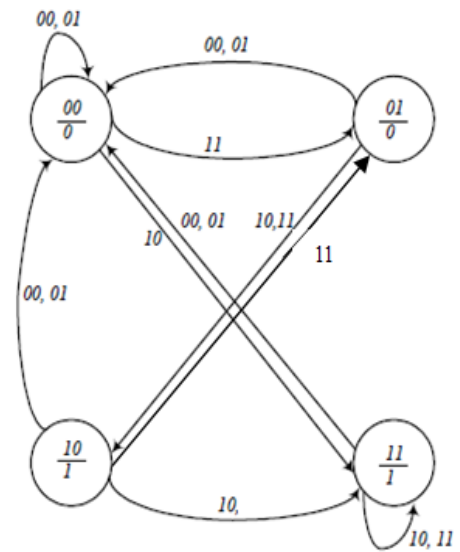
5.6



(b)  $A(t+1) = xy' + xB$   
 $B(t+1) = xA + xB'$   
 $z = A$

Present state		Inputs		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)

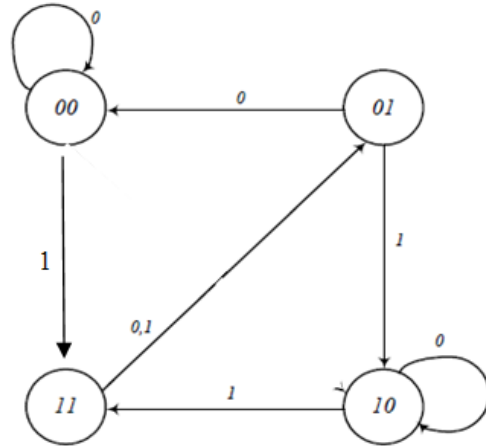


5.9

$$\begin{array}{ll}
 J_A = x & K_A = B \\
 J_B = x & K_B = A'
 \end{array}$$

$$\begin{array}{l}
 A(t+1) = J_A A' + K_A A = xA' + B'A \\
 B(t+1) = J_B B' + K_B B = xB' + AB
 \end{array}$$

$x$	$A$	$B$	$xA' + B'A$	$xB' + AB$
0	0	0	0	0
0	0	1	0	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	1
1	0	1	1	0
1	1	0	1	1
1	1	1	0	1

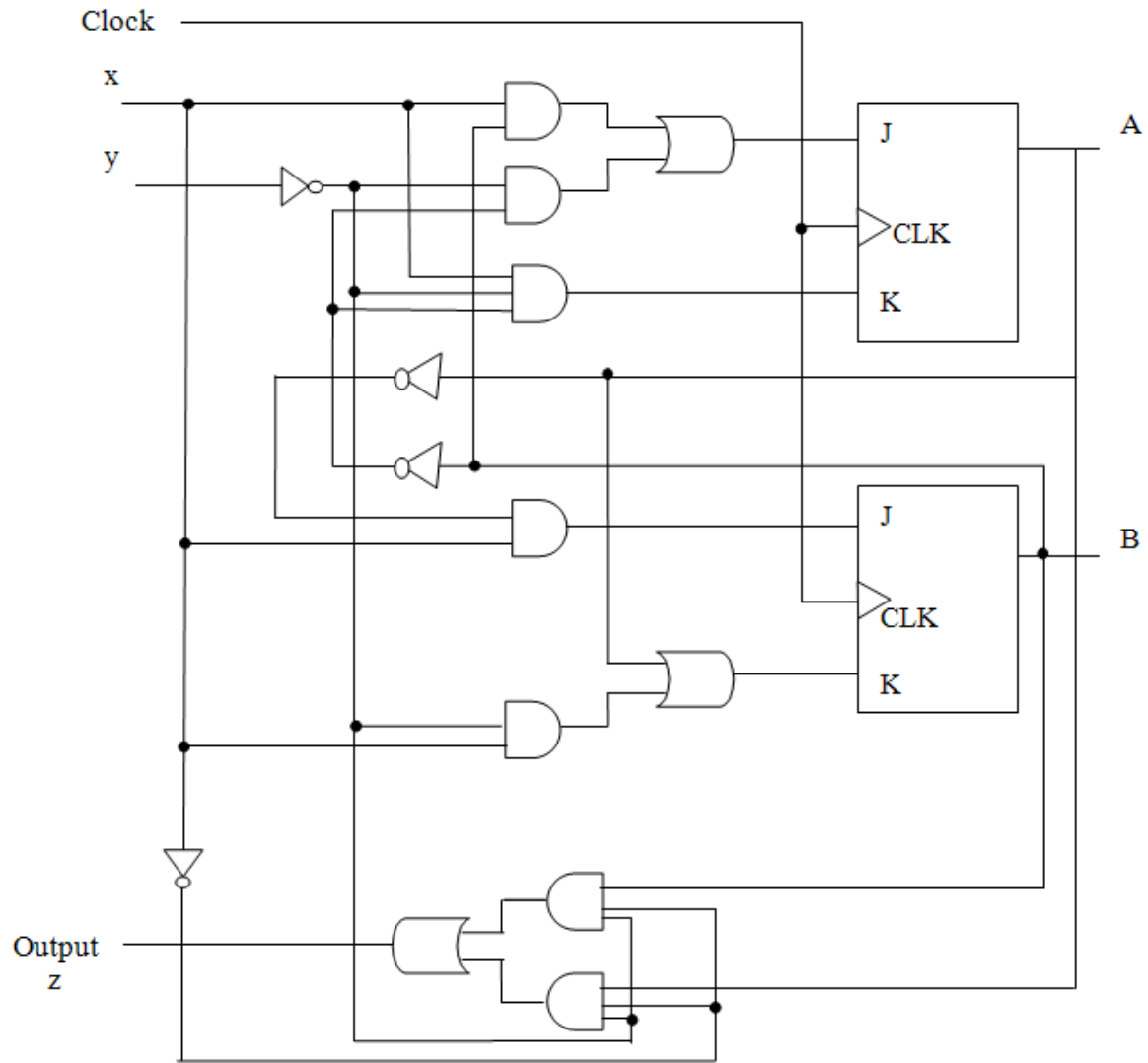


5.10

(a)  $J_A = Bx + B'y'$   
 $K_A = B'xy'$

$J_B = A'x$   
 $K_B = A + xy'$

$Z = Ax'y' + Bx'y'$



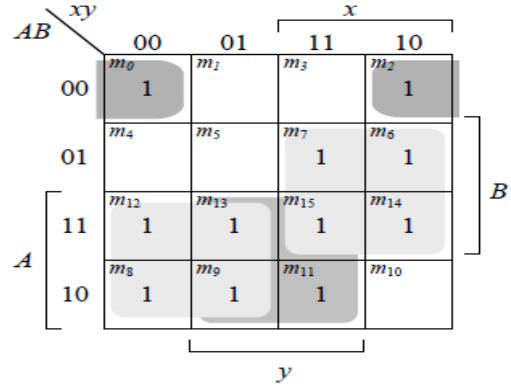
$$A(t+1) = (Bx + B'y')A' + (B'xy')'A$$

$$B(t+1) = A'xB' + (A + xy)'B$$

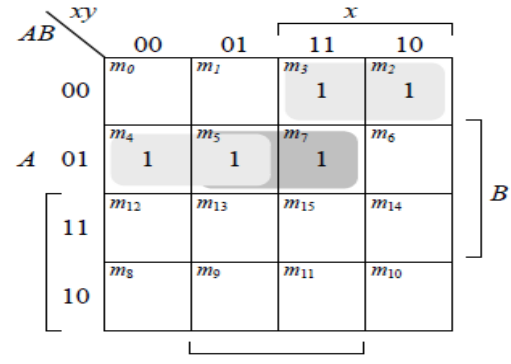
(b)

Present state		Inputs		Next state		Output	FF Inputs			
A	B	x	y	A	B	z	$J_A$	$K_A$	$J_B$	$K_B$
0	0	0	0	1	0	0	1	0	0	0
0	0	0	1	0	0	0	0	0	0	0
0	0	1	0	1	1	0	1	1	1	1
0	0	1	1	0	1	0	0	0	1	0
0	1	0	0	0	1	1	0	0	0	0
0	1	0	1	0	1	0	0	0	0	0
0	1	1	0	1	0	0	1	0	1	0
0	1	1	1	1	1	0	1	0	1	0
1	0	0	0	1	0	1	1	0	0	1
1	0	0	1	1	0	0	0	0	0	1
1	0	1	0	0	0	0	1	1	0	1
1	0	1	1	1	0	0	0	0	0	1
1	1	0	0	1	0	1	0	0	0	1
1	1	0	1	1	0	0	0	0	0	1
1	1	1	0	1	0	0	1	0	0	1
1	1	1	1	1	0	0	1	0	0	1

(c)

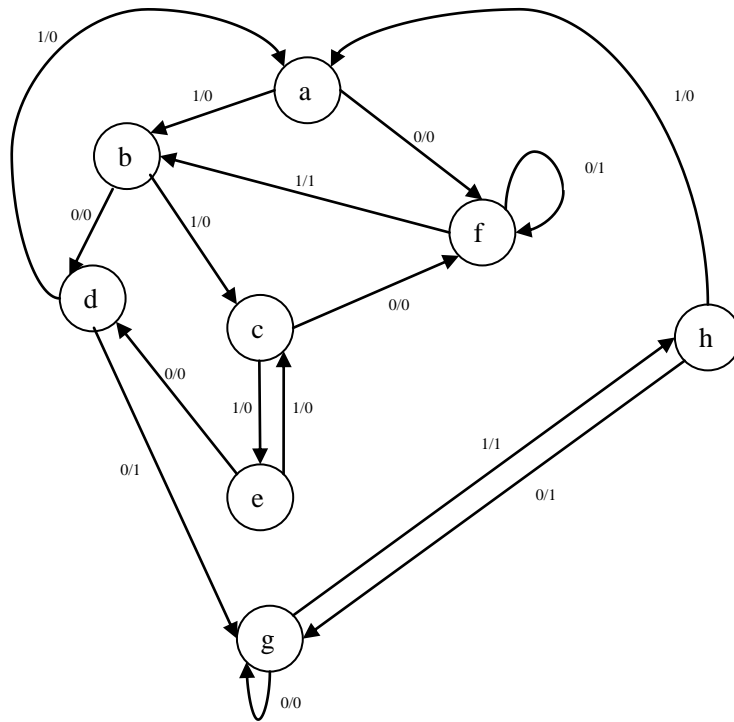


$$A(t+1) = Ax' + Bx + Ay + A'B'y'$$



$$B(t+1) = A'B'x + A'B'(x' + y)$$

5.12  
(a)



(b)

Present state	Next state		Output	
	0	1	0	1
<i>a</i>	<i>f</i>	<i>b</i>	0	0
<i>b</i>	<i>d</i>	<i>a</i>	0	0
<i>d</i>	<i>g</i>	<i>a</i>	1	0
<i>f</i>	<i>f</i>	<i>b</i>	1	1
<i>g</i>	<i>g</i>	<i>d</i>	0	1

(c)

