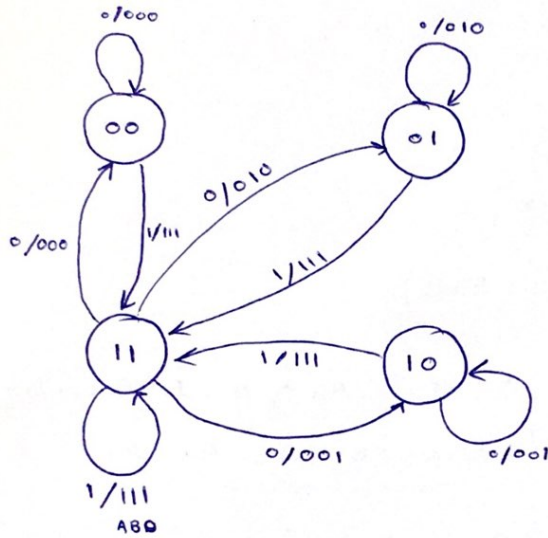


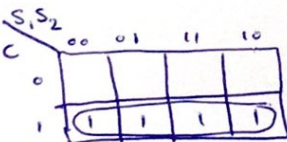
#1



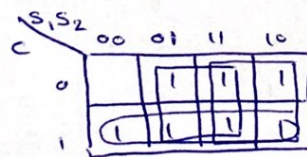
$S_1 S_2$

صفت 1 -> 1 -> صفة
توقف 0 -> 0 -> توقف

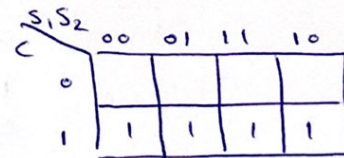
	C	$S_1(t)$	$S_2(t)$	$S_1(t+1)$	$S_2(t+1)$	A	B	D
0:	0	0	0	0	0	0	0	0
1:	0	0	1	0	1	0	1	0
2:	0	1	0	0	1	0	1	0
3:	0	1	1	0	1	0	1	0
4:	1	0	0	1	1	1	1	1
5:	1	0	1	1	1	1	1	1
6:	1	1	0	1	1	1	1	1
7:	1	1	1	1	1	1	1	1



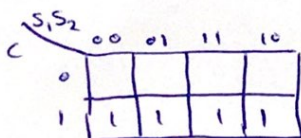
$$A = C$$



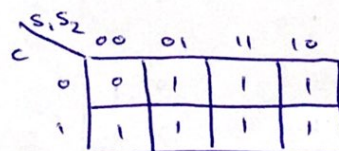
$$B = C + S_1 + S_2$$



$$D = C$$

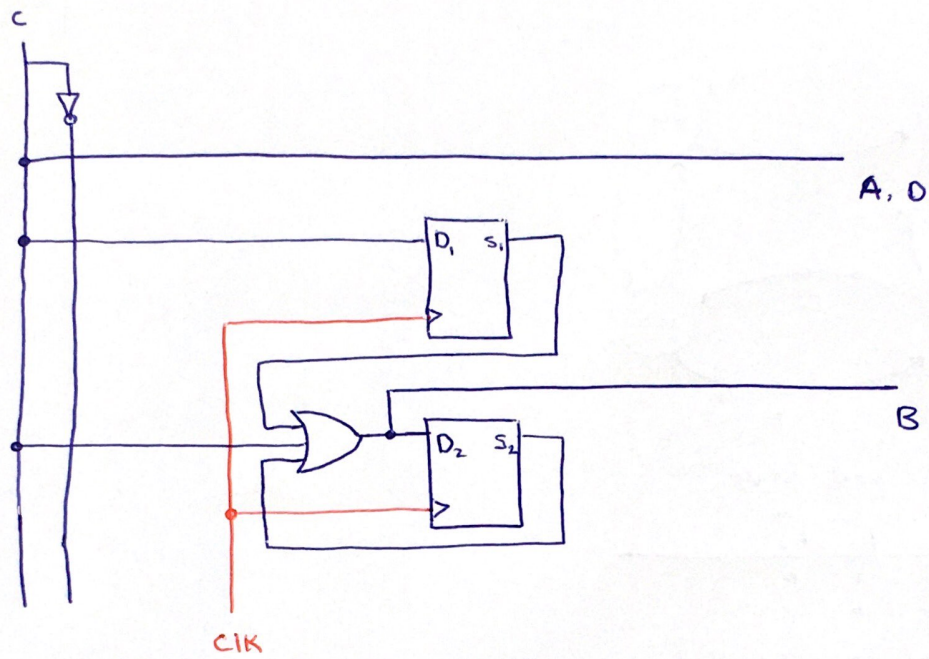


$$S_1(t+1) = D_1 = C$$



$$S_2(t+1) = D_2 = C + S_1 + S_2$$

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ادامہ سوال



#2

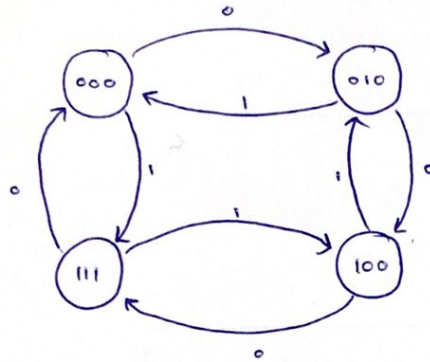
$$\begin{cases} J_A = Bx + \bar{B}\bar{y} , & K_A = \bar{B}x\bar{y} \\ J_B = \bar{A}x , & K_B = A + x\bar{y} \\ Z : \text{output} & Z = A\bar{x}\bar{y} + B\bar{x}\bar{y} = \bar{x}\bar{y} \cdot (A+B) \end{cases}$$

next state : JK FF $Q(t+1) = J\bar{Q} + \bar{K}Q \rightarrow$

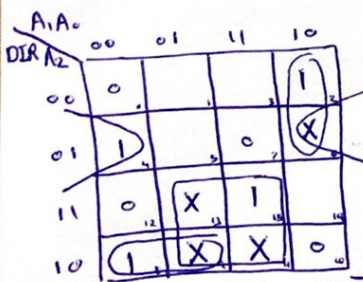
$$\begin{aligned} A(t+1) &= J_A \bar{A} + \bar{K}_A A = \bar{A} \cdot (Bx + \bar{B}\bar{y}) + A(\bar{B}x\bar{y}) \\ &= \bar{A}Bx + \bar{A}\bar{B}\bar{y} + AB + A\bar{x} + Ay \\ B(t+1) &= J_B \bar{B} + \bar{K}_B B = \bar{A}x\bar{B} + B(A + x\bar{y}) \\ &= \bar{A}x\bar{B} + AB\bar{x} + \bar{A}By \end{aligned}$$

input		Present state		next state		FF inputs				output
x	y	A(t)	B(t)	A(t+1)	B(t+1)	J _A	K _A	J _B	K _B	Z
0	0	0	0	1	0	1	0	0	0	0
0	0	0	1	0	1	0	0	0	0	1
0	0	1	0	1	0	1	0	0	1	1
0	0	1	1	1	0	0	0	0	1	1
0	1	0	0	0	0	0	0	0	0	0
0	1	0	1	0	1	0	0	0	0	0
0	1	1	0	1	0	0	0	0	1	0
0	1	1	1	1	0	0	0	0	1	0
1	0	0	0	1	1	1	1	1	1	0
1	0	0	1	1	0	1	0	1	1	0
1	0	1	0	0	0	1	1	0	1	0
1	0	1	1	0	0	1	0	0	1	0
1	1	0	0	0	1	0	0	1	0	0
1	1	0	1	1	1	1	0	1	0	0
1	1	1	0	1	0	0	0	0	1	0
1	1	1	1	0	0	1	0	0	1	0

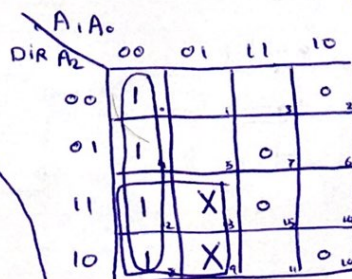
#3



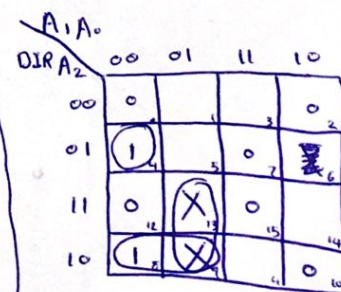
Present state				Next state		
DIR	A ₂	A ₁	A ₀	A ₂ ⁺	A ₁ ⁺	A ₀ ⁺
0:	0	0	0	0	1	0
1:	0	0	0	0	0	0
2:	0	0	1	1	0	0
3:	0	0	1	0	0	0
4:	0	1	0	1	1	1
5:	0	1	0	0	0	0
6:	0	1	1	X(1)	0	0
7:	0	1	1	0	0	0
8:	1	0	0	1	1	1
9:	1	0	0	X(1)	X(1)	X(1)
10:	1	0	1	0	0	0
11:	1	0	1	X(1)	0	0
12:	1	1	0	0	1	0
13:	1	1	0	X(1)	X(1)	X(1)
14:	1	1	1	0	0	0
15:	1	1	1	1	0	0



$$A_2(t+1) = D A_2 + \bar{A}_0 \bar{D} A_2 + A_1 \bar{A}_0 \bar{D}$$



$$A_1(t+1) = D A_1 = \bar{A}_1 \bar{A}_0 + D \bar{A}_1$$



$$A_0(t+1) = D A_0 = D \bar{A}_2 \bar{A}_1 + D \bar{A}_1 A_0 + \bar{D} A_2 \bar{A}_1 \bar{A}_0$$

ادامہ سوال 3

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