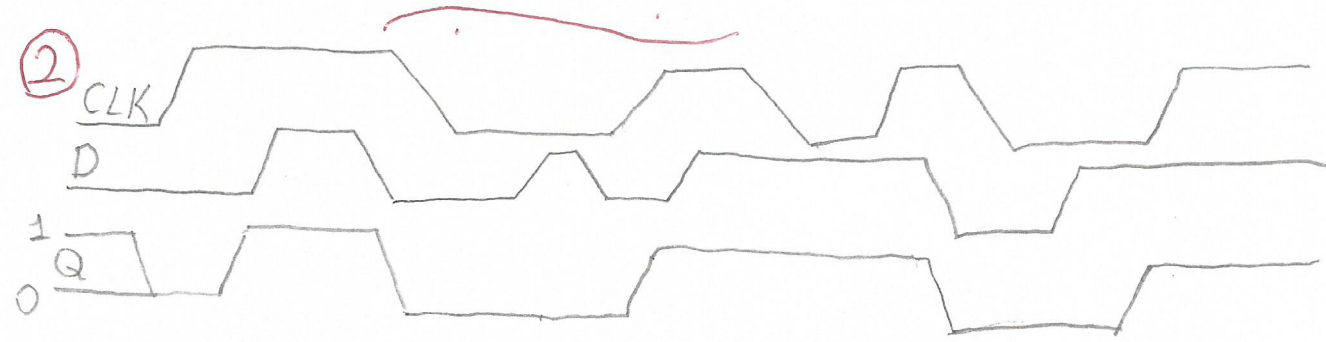


* $S=1, R=0 \rightarrow Q=1$ $S=0, R=1 \rightarrow Q=0$

$S=0, R=0 \rightarrow Q=Q_{\text{prev}}$ $S=1, R=1 \rightarrow Q=0$ (Invalid)

• Q'yu hem 0 hem 1 den başlattım, yukarıdaki durumlara uyarak değişimi çizdim.



* CLK 1 olduğunda $Q=D$ oluyor (Transparent)

CLK 0 olduğunda Q, D'deki değişimden etkilenmiyor. (Opaque)

③ Bu devre bir sequential logic devresi. Hem set hem de reset barındıran bir D flip-flop.

$\bar{S}=0, \bar{R}=1 \rightarrow Q=1$ ($S=1, R=0$)

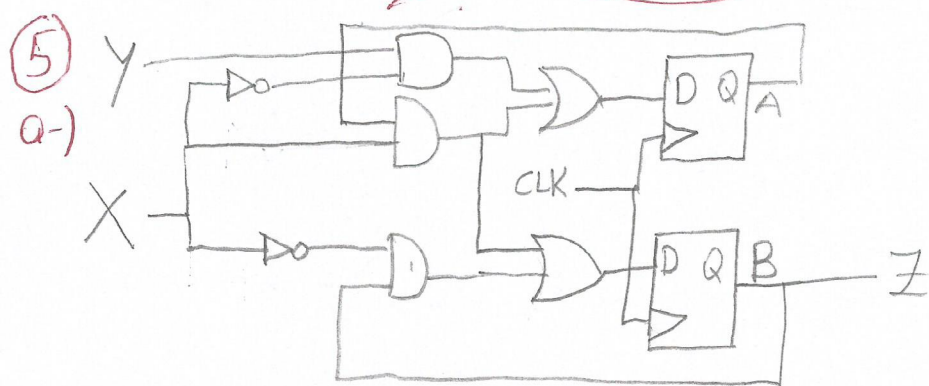
$\bar{R}=0, \bar{S}=1 \rightarrow Q=0$ ($S=0, R=1$)

$\bar{S}=\bar{R}=1 \rightarrow$ Normal D flip-flop

Solusgal

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Solusul

[illegible]

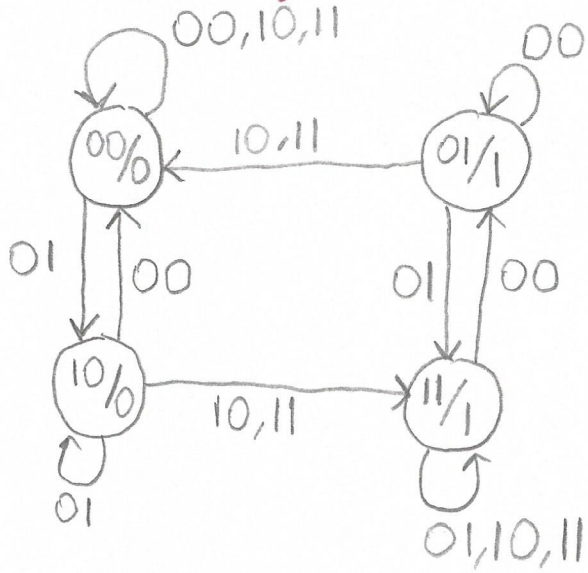
İrtuğrul KANTAR

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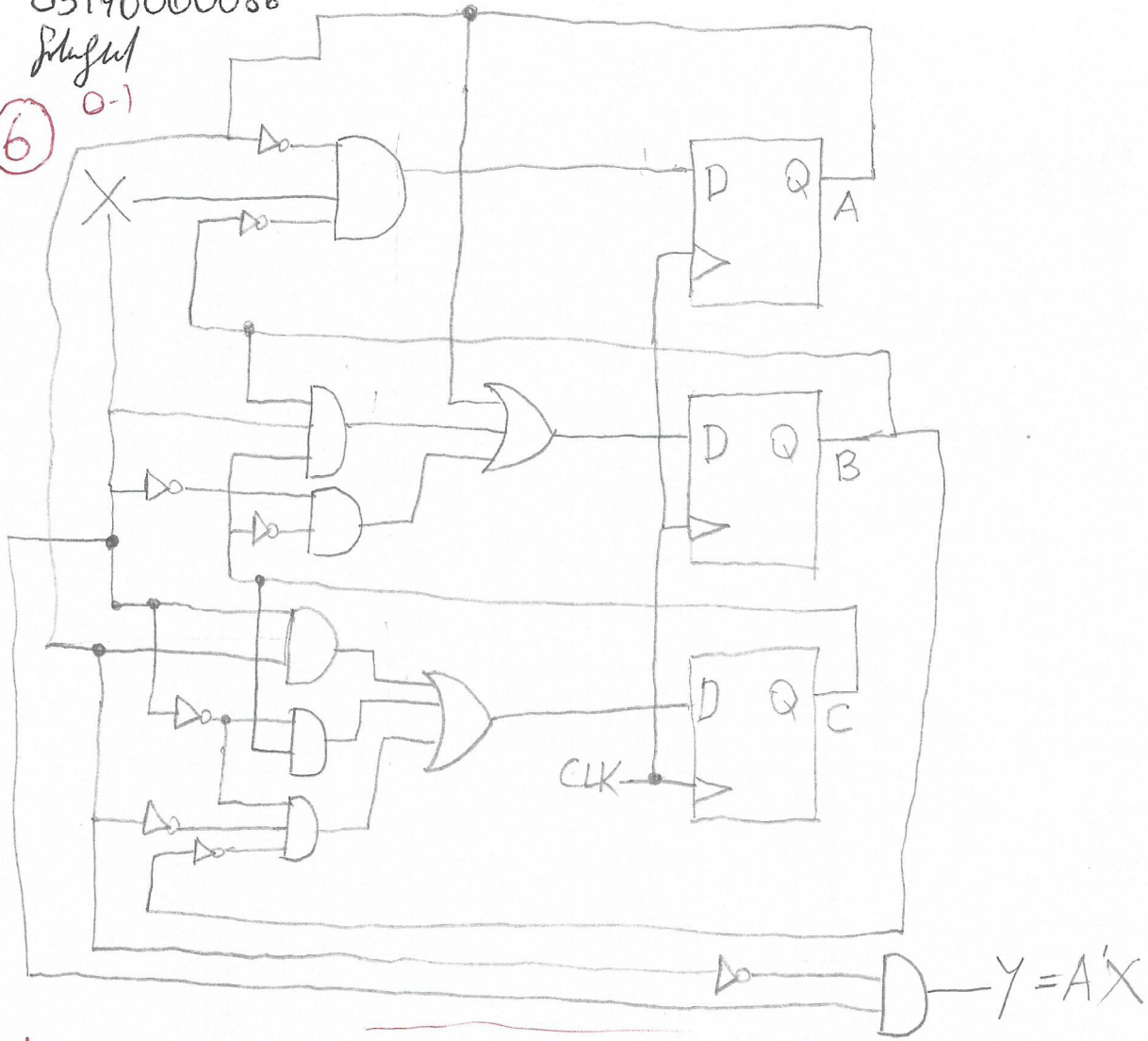
İstanbul

*Analizde state diagram istendiğini sonra öğrendim. Bu sebeple ek sayfalar ekledim analara

5-c State Diagram (Moore Machine)



(6)



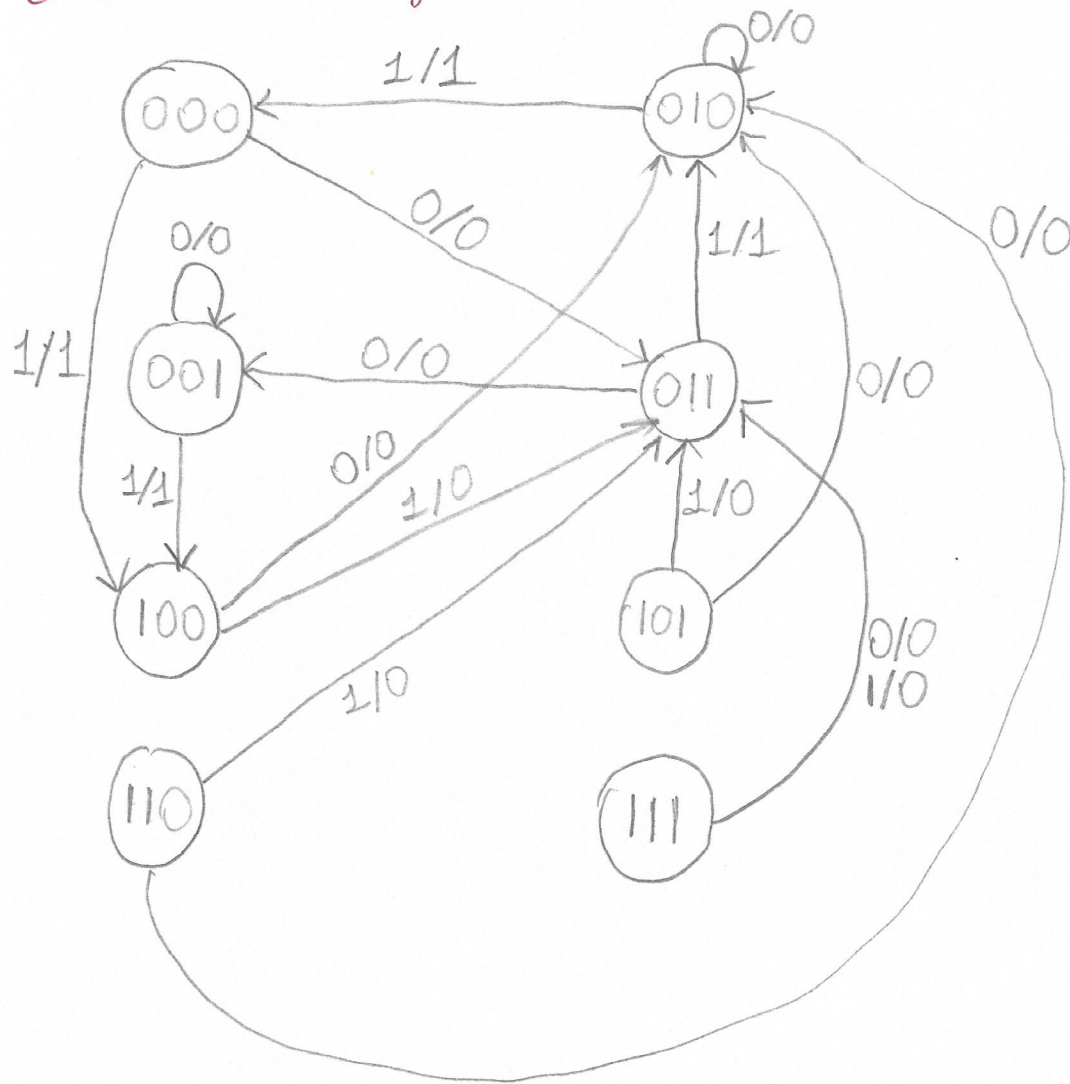
b-) Devre Mealy devresi. Çünkü Y hem inputa hem de state bağlı.

c-) A B C X A⁺ B⁺ C⁺ Y

0	0	0	0	0	1	1	0
0	0	0	1	0	0	1	1
0	0	1	0	0	0	0	0
0	0	1	1	1	0	0	1
0	1	0	0	0	1	0	0
0	1	0	1	0	0	0	1
0	1	1	0	0	0	1	0
0	1	1	1	0	1	0	1
1	0	0	0	0	1	0	0
1	0	0	1	0	1	1	0
1	0	1	0	0	1	0	0
1	0	1	1	0	1	1	0
1	1	0	0	0	1	1	0
1	1	0	1	0	1	1	0
1	1	1	0	0	1	1	0
1	1	1	1	0	1	1	0

Ertuğrul KANTAR
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6-c State Diagram (Mealy Derresi.)



İrtufan KANTAR

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İrtufan

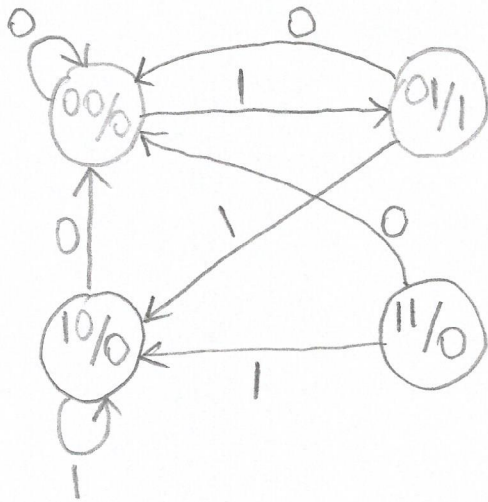
7 a-) $Y = \bar{A}B$, output yalnız statelere bağlı, Moore devresi.

b-) $A(t+1) = (A+B) \cdot X$

$B(t+1) = X\bar{A}\bar{B}$

$Y = \bar{A}B$

A	B	X	A ⁺	B ⁺	Y
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	0	0	1
0	1	1	1	0	1
1	0	0	0	0	0
1	0	1	1	0	0
1	1	0	0	0	0
1	1	1	1	0	0



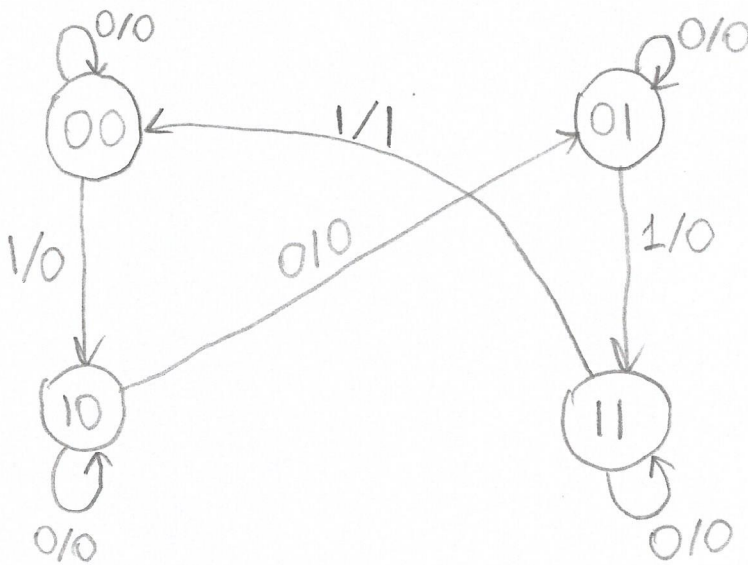
8) a-) $Y = (Cnt) Q_0 Q_1$, output hem statelere hem inputa bağlı.
Mealey derresi.

b-) $Q_0(t+1) = (Cnt) \oplus Q_0$

$Q_1(t+1) = [(\bar{Cnt}) Q_1] + [(Cnt) Q_0 \bar{Q}_1] + [(Cnt) \bar{Q}_0 Q_1]$

$Y = (Cnt) Q_0 Q_1$

Q_0	Q_1	Cnt	Q_0^+	Q_1^+	Y
0	0	0	0	0	0
0	0	1	1	0	0
0	1	0	0	1	0
0	1	1	1	1	0
1	0	0	1	0	0
1	0	1	0	1	0
1	1	0	1	1	0
1	1	1	0	0	1



Ertuğrul KANTAR

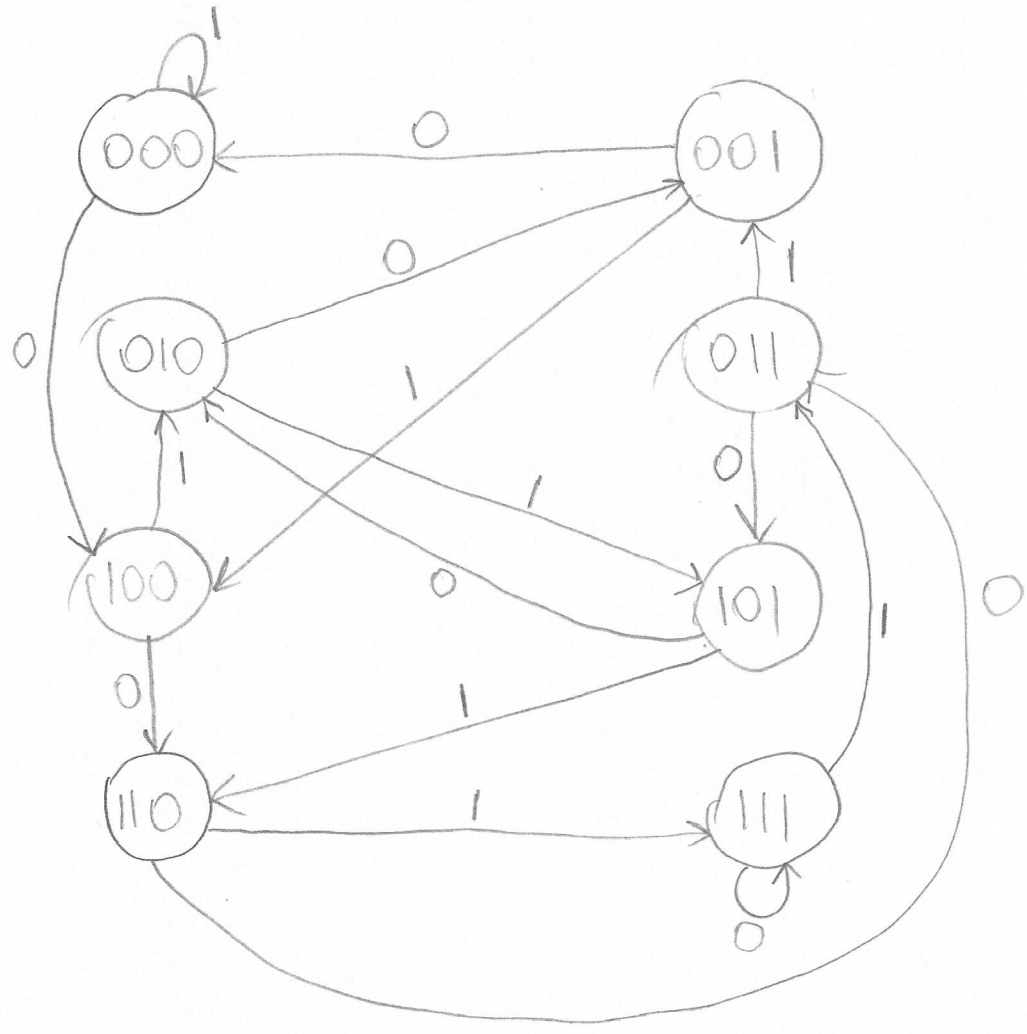
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Solusiyu

$X=0$ / $X=1$

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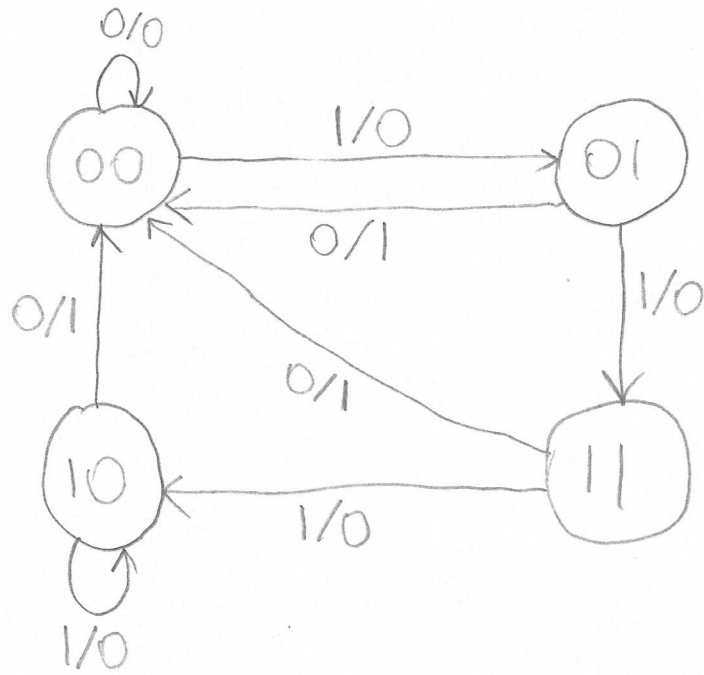
A	B	C	A ⁺	B ⁺	C ⁺	A ⁺	B ⁺	C ⁺
0	0	0	1	0	0	0	0	0
0	0	1	0	0	0	1	0	0
0	1	0	0	0	1	1	0	1
0	1	1	1	0	1	0	0	1
1	0	0	1	1	0	0	1	0
1	0	1	0	1	0	1	1	0
1	1	0	0	1	1	1	1	1
1	1	1	1	1	1	0	1	1



İrtügan KANTAR
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İrtügan

(10)

		X=0		X=1		X=0	X=1
A	B	A ⁺	B ⁺	A ⁺	B ⁺	Y	Y
0	0	0	0	0	1	0	0
0	1	0	0	1	1	1	0
1	0	0	0	1	0	1	0
1	1	0	0	1	0	1	0

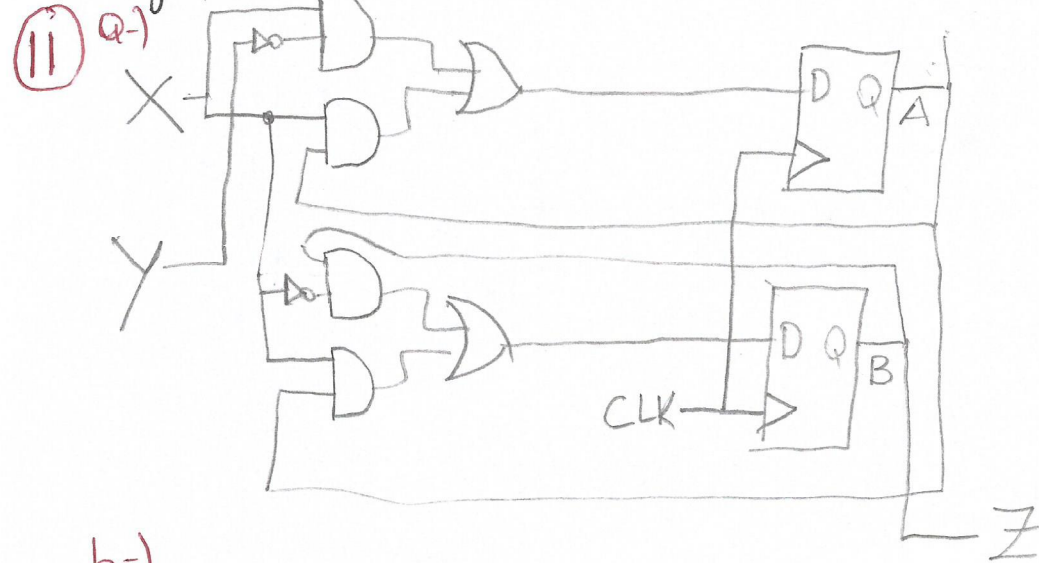


(Mealy)

Ertağul KANTAR

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Soluşu



b-)

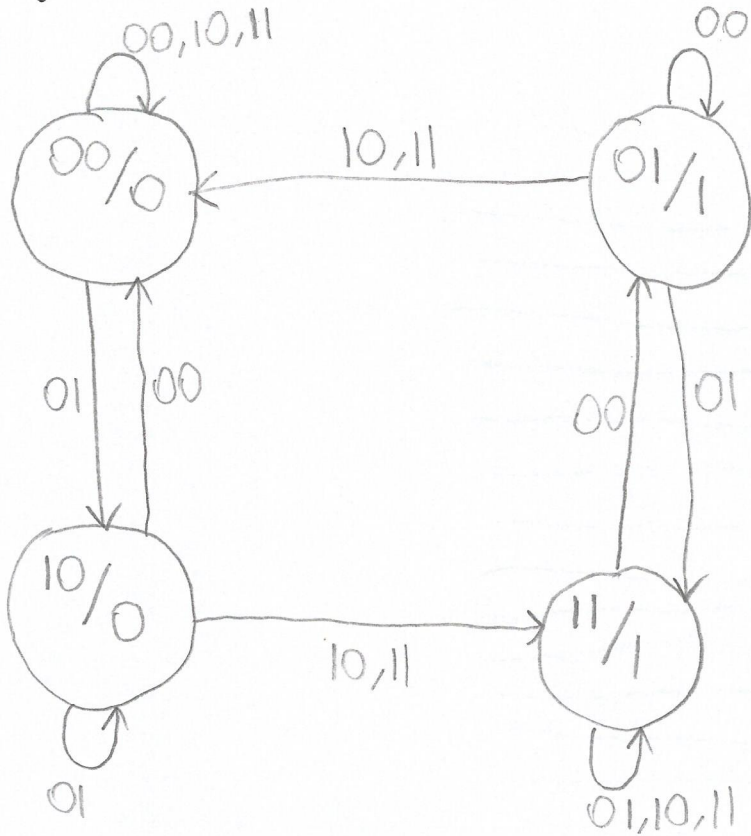
A	B	X	Y	A ⁺	B ⁺	Z
0	0	0	0	0	0	0
0	0	0	1	0	0	0
0	0	1	0	0	0	0
0	0	1	1	0	0	0
0	1	0	0	0	1	1
0	1	0	1	0	1	1
0	1	1	0	0	1	1
0	1	1	1	0	1	1
1	0	0	0	1	0	0
1	0	0	1	1	0	0
1	0	1	0	1	1	0
1	0	1	1	1	1	0
1	1	0	0	1	1	1
1	1	0	1	1	1	1
1	1	1	0	1	1	1
1	1	1	1	1	1	1

Ertağul KANTAR

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Ertağul

C-)



(Moore)

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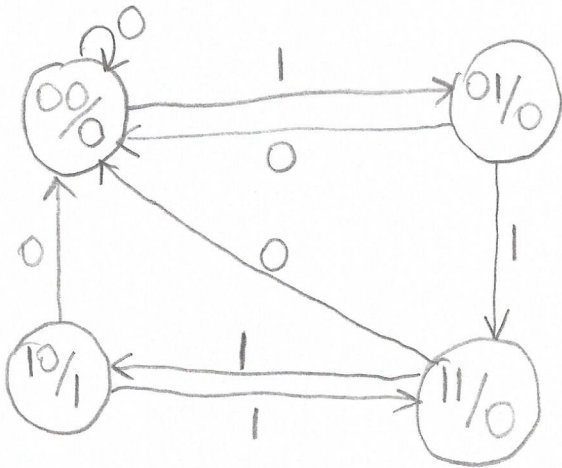
$$Q_1(t+1) = (Q_1 + Q_2)W$$

$$Q_2(t+1) = (\bar{Q}_1 + \bar{Q}_2)W$$

$$Z = Q_1 \bar{Q}_2 \text{ (Moore)}$$

Q_1	Q_2	W	Q_1^+	Q_2^+	Z
0	0	0	0	0	0
0	0	1	0	1	0
0	1	0	0	0	0
0	1	1	1	1	0
1	0	0	0	0	1
1	0	1	1	1	1
1	1	0	0	0	0
1	1	1	1	0	0

Ertağul KANTAR
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Srhufal



(13) $Z = AB \rightarrow$ Moore Devresi

A	B	E	A^+	B^+	Z
0	0	0	1	0	0
0	0	1	1	0	0
0	1	0	1	1	0
0	1	1	1	1	0
1	0	0	0	1	0
1	0	1	0	1	0
1	1	0	1	1	1
1	1	1	0	0	1

