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Grupa 164, CTi

21.01.2024

Examen

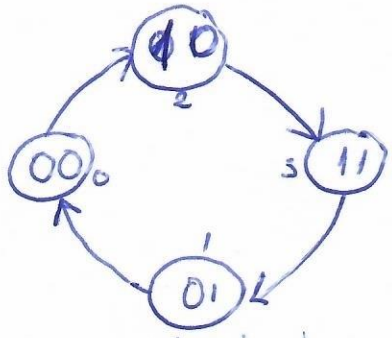
Exercitiul 1

R	J	K	C	Q	
0	0	0	1	1	
0	1	0	1	1	Memorie
0	1	0	0	1	Memorie
1	0	1	0↓	0	Reset
1	0	1	1↓	0	Reset
1	1	0	1	0	Reset
0	0	1	1	0	Memorie
0	0	0	0↓	0	Memorie
0	1	1	1↓	0	J=0 K=0 => Memorie
0	0	1	0	0	Memorie
0	0	0	0↓	0	Memorie
0	0	0	1↓	0	Memorie J=0 K=0

$Q = 111\,00.0000,000$

Exercitiul 2

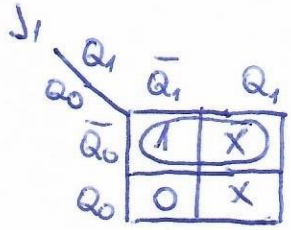
$2 \to 3 \to 1 \to 0 \to 2$



Q_m	Q_{m+1}	J	k
0	0	0	x
0	1	1	x
1	0	x	1
1	1	x	0

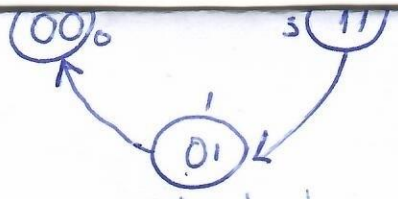
Q_1	Q_0	Q_1'	Q_0'	J_1	K_1	J_0	K_0
0	0	1	0	1	x	0	x
0	1	0	0	0	x	x	1
1	0	1	1	x	0	1	x
1	1	0	1	x	1	x	0

a)



$\Rightarrow J_1 = \overline{Q_0}$

$K_1 = Q_0$



Q_1	Q_0	Q_1'	Q_0'	J_1	K_1	J_0	K_0
0	0	1	0	1	X	0	X
0	1	0	0	0	X	X	1
1	0	1	1	X	0	1	X
1	1	0	1	X	1	X	0

1	0	X	1
1	1	X	0

a)

J_1

Q_0 \ Q_1	$\bar{Q}_1$	Q_1
$\bar{Q}_0$	1	X
Q_0	0	X

$\Rightarrow J_1 = \bar{Q}_0$

K_1

Q_0 \ Q_1	$\bar{Q}_1$	Q_1
Q_0	X	0
$\bar{Q}_0$	X	1
Q_0		

$K_1 = Q_0$

J_0

Q_0 \ Q_1	$\bar{Q}_1$	Q_1
$\bar{Q}_0$	0	1
Q_0	X	X

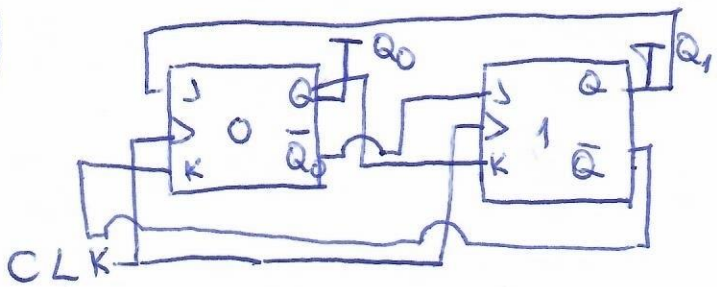
$J_0 = Q_1$

K_0

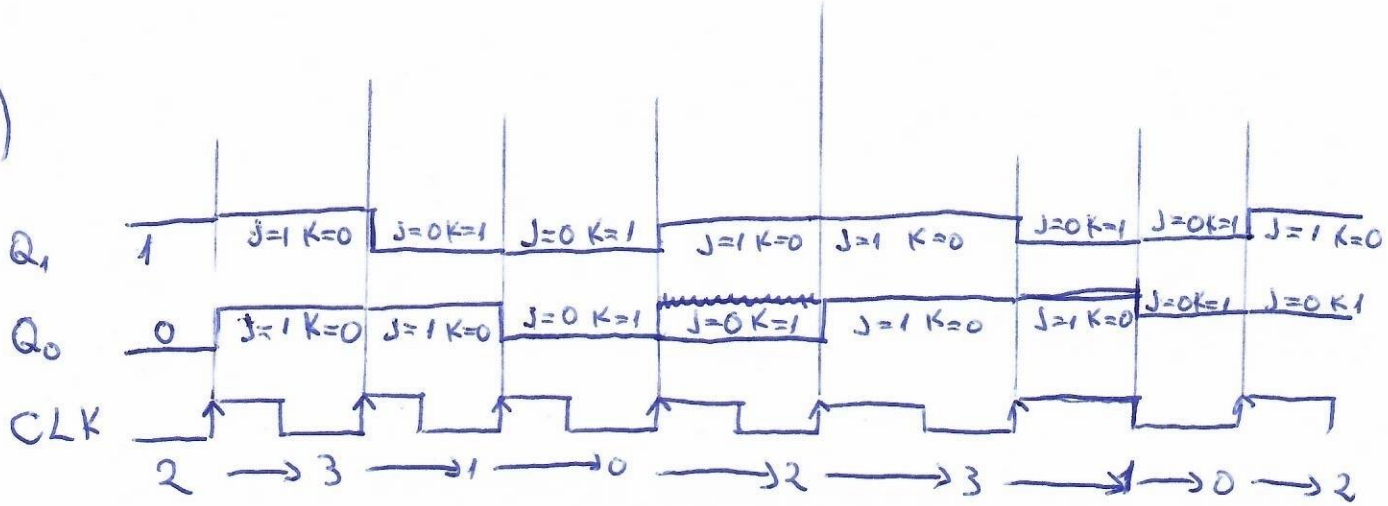
Q_0 \ Q_1	$\bar{Q}_1$	Q_1
$\bar{Q}_0$	X	X
Q_0	1	0

$K_0 = \bar{Q}_1$

b)



c)



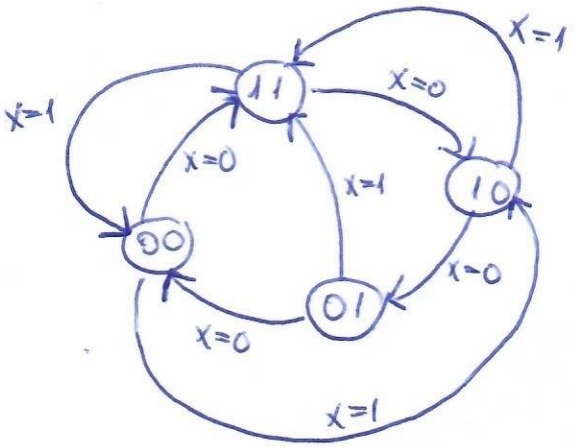
$J_1 = \bar{Q}_0$ $\quad J_0 = Q_1$

$K_1 = Q_0$ $\quad K_0 = \bar{Q}_1$

Exercitiul 3

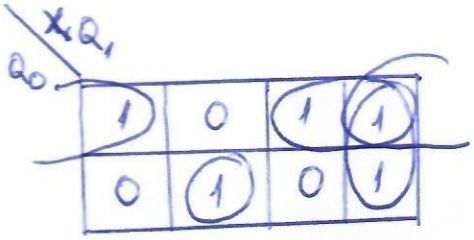
a) $x=0$ $3 \to 2 \to 1 \to 0 \to 3$

$x=1$ $1 \to 3$; $2 \to 3 \to 0 \to 2$



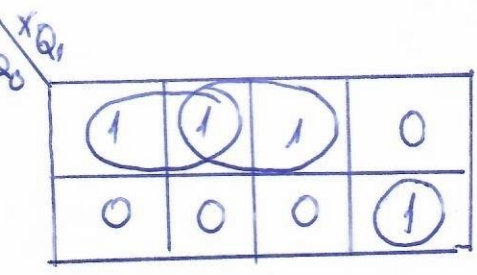
x	Q_1	Q_0	Q_1'	Q_0'	D_1	D_0
0	0	0	1	1	1	1
0	0	1	0	0	0	0
0	1	0	0	1	0	1
0	1	1	1	0	1	0
1	0	0	1	0	1	0
1	0	1	1	1	1	1
1	1	0	1	1	1	1
1	1	1	0	0	0	0

D_1



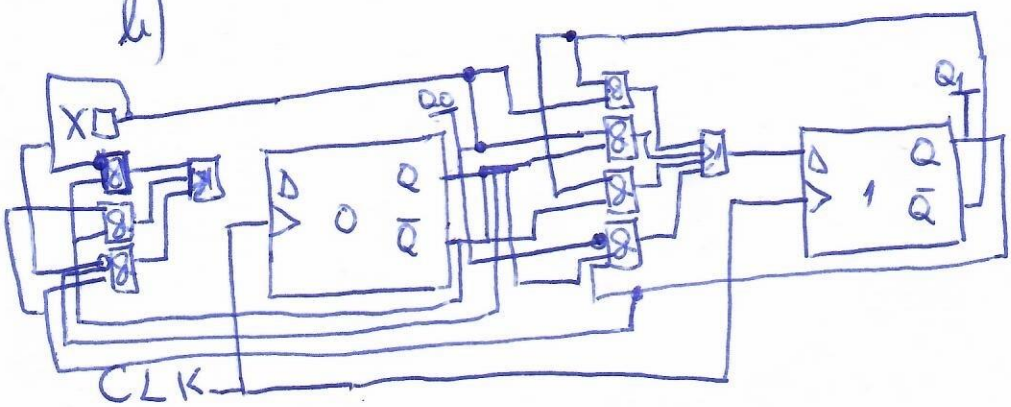
$D_1 = x\bar{Q}_1 + x\bar{Q}_0 + \bar{Q}_1\bar{Q}_0 + \bar{x}Q_1Q_0$

D_2

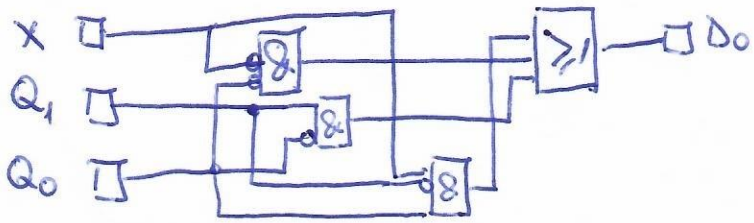
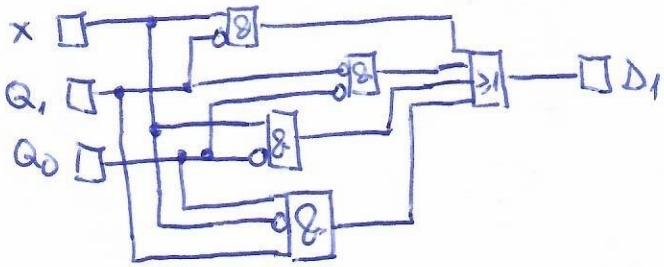


$D_0 = \bar{x}\bar{Q}_0 + Q_1\bar{Q}_0 + x\bar{Q}_1Q_0$

b)



Pt D_0



Pt D_1