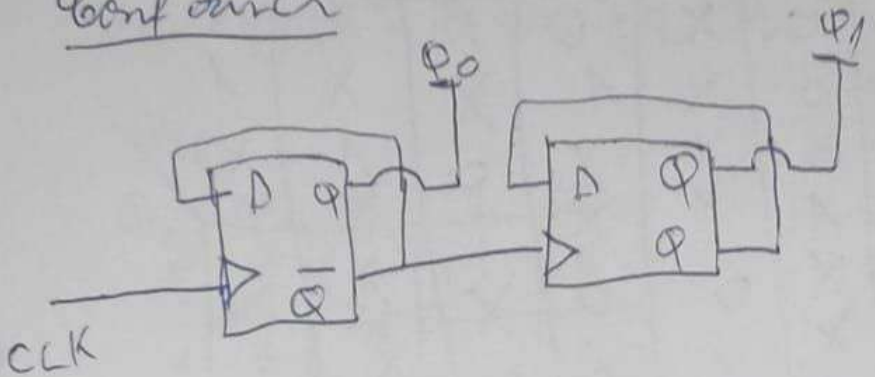
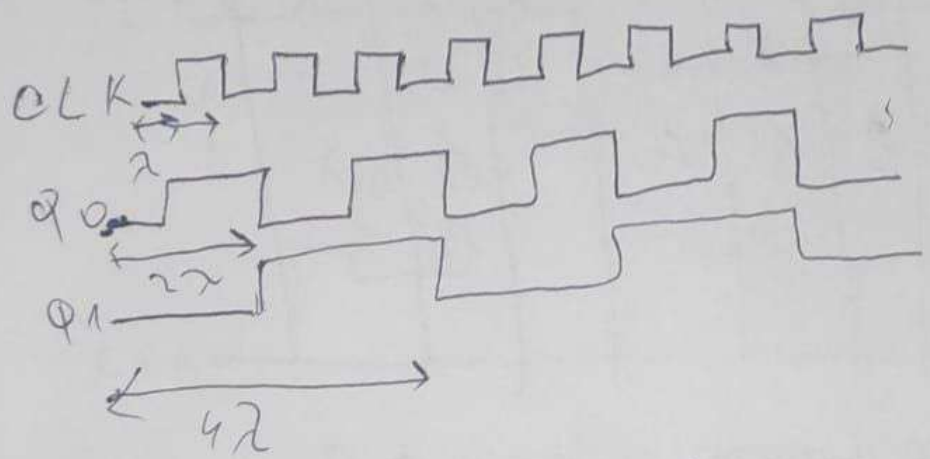
Curs 10 Proiectare Logică

Configurații



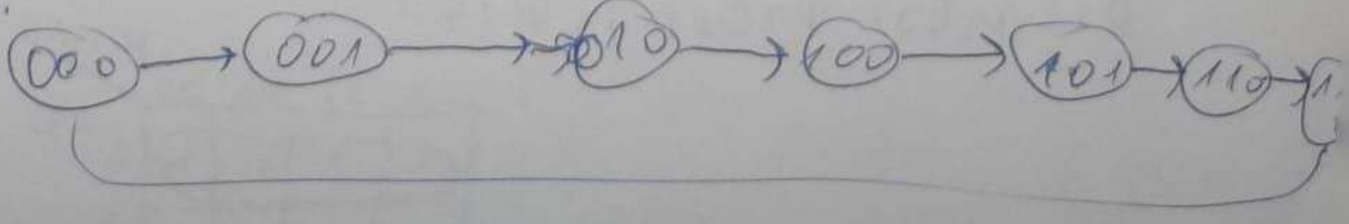


Configurația asincronă fn
ca divizor de frecvență ordinul
$2^n \lambda$ unde λ-lungimea de undă $\left(\nu = \frac{1}{\lambda}\right)$ a semnalului de
n-nr de bistabili intrare

În generarea de numărătoare folosim configurația.

Vom asocia o MSF (FSM) definită pe un graf ciclic orientat

E.g.



Q_2	Q_1	Q_0	Q_2'	Q_1'	Q_0'	J_2	K_2	J_1	K_1	J_0	K_0
0	0	0	0	0	1	0	X	0	X	1	X
0	0	1	0	1	0	0	X	1	X	X	1
0	1	0	0	1	1	0	X	X	X	1	X
0	1	1	1	0	0	1	X	X	1	X	1
1	0	0	1	0	1	X	0	0	X	1	X
1	0	1	1	1	0	X	0	1	X	X	1
1	1	0	1	1	1	X	0	X	0	1	X
1	1	1	0	0	0	X	1	X	1	X	1
1											

Daca BB de tip D copiază intrarea D la ieșirea Q pe frontul osc al semnalului de ceas.

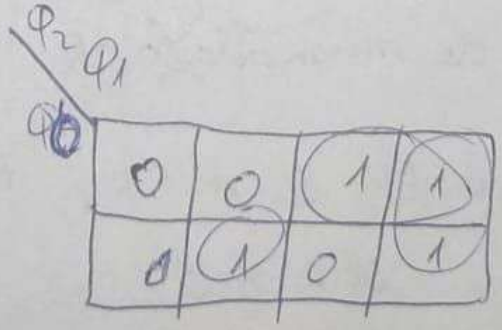
$D_2 = Q_2'$

$D_1 = Q_1'$

$D_0 = Q_0'$

$D_2 = \sum (3,4,5,6)$

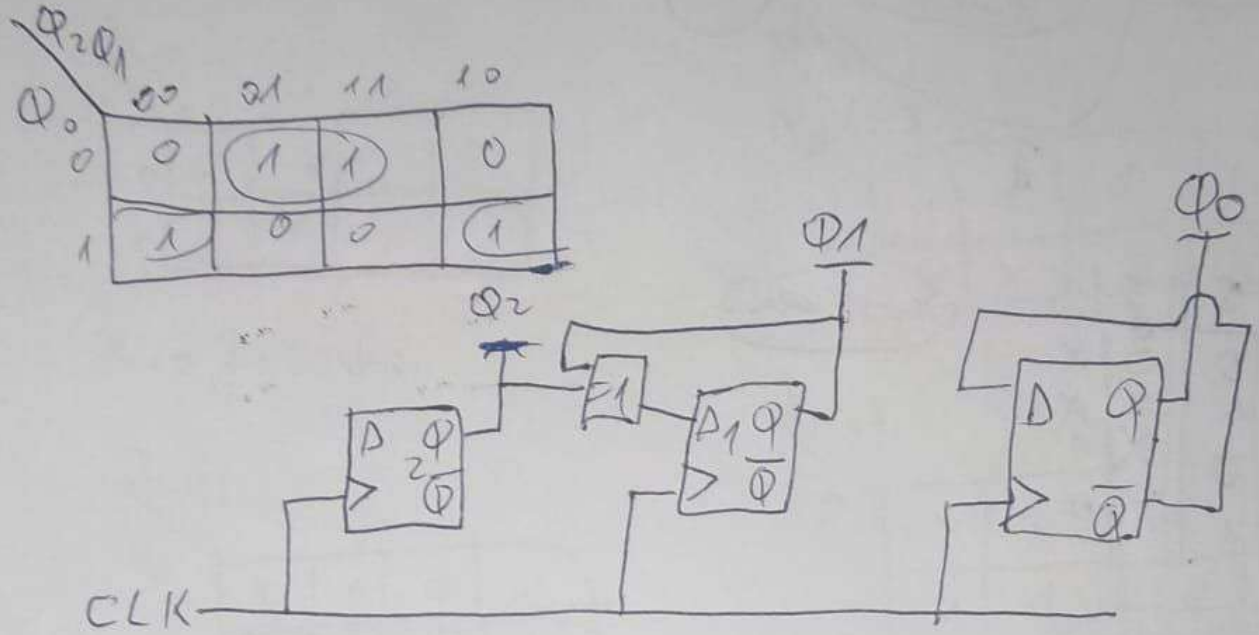
$D_2 =$

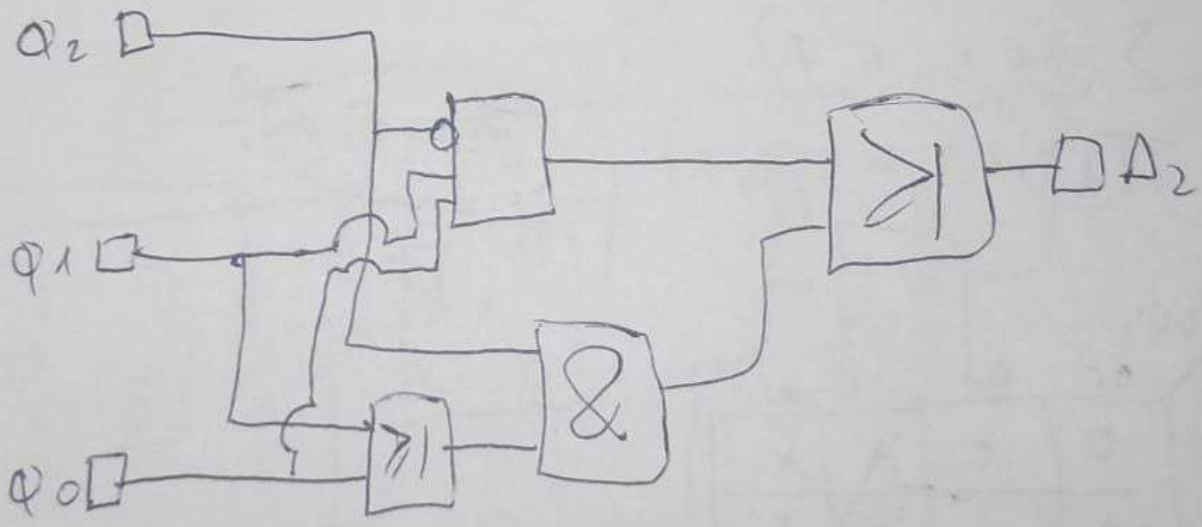


$D_2 = Q_2Q_0 + Q_2\bar{Q}_1 + \bar{Q}_2Q_1Q_0$

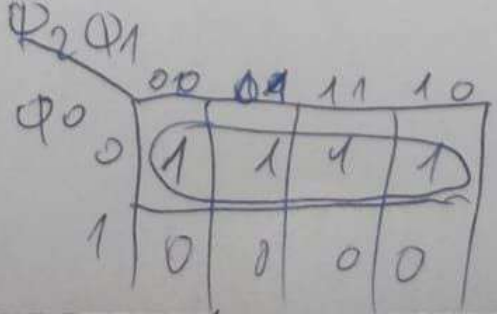
$$D_1 = \sum(1,2,5,6)$$

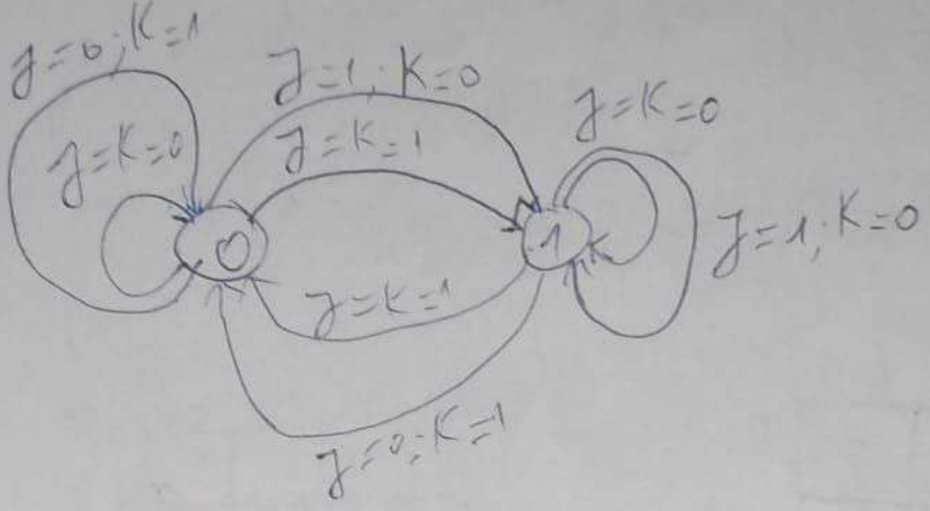
$$D_1 = Q_1\overline{Q_0} + \overline{Q_1}Q_0 = Q_1 \oplus Q_0$$





$$D_0 = \sum(0,2,4,6) = \overline{Q_0}$$





Q	Q'	J	K
0	0	0	X
0	1	1	X
1	0	X	1
1	1	X	0

X = 1 nan

Tabel fig 2

$J_2 = \Sigma(3,4,5,6,7)$

$\Pi(0,1,2,4,5,6,7)$

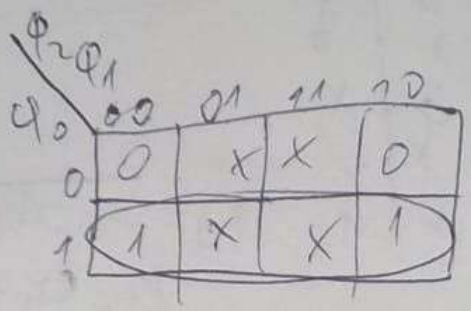
$J_2 = \Phi_1 \Phi_0$

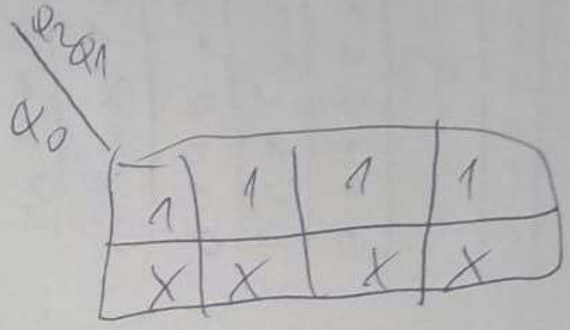
Φ_0 \ $\Phi_2\Phi_1$	00	01	11	10
0	0	0	X	X
1	0	1	X	X

$J_1 = \sum (1, 2, 3, 5, 6, 7)$

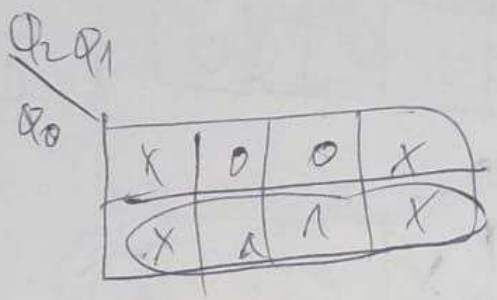
$\pi (0, 2, 3, 4, 6, 7)$

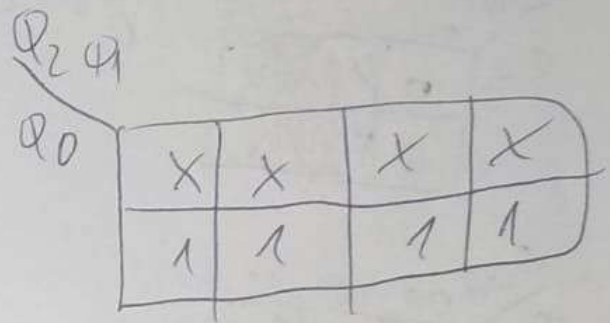
$J_{0=1} = K_0$

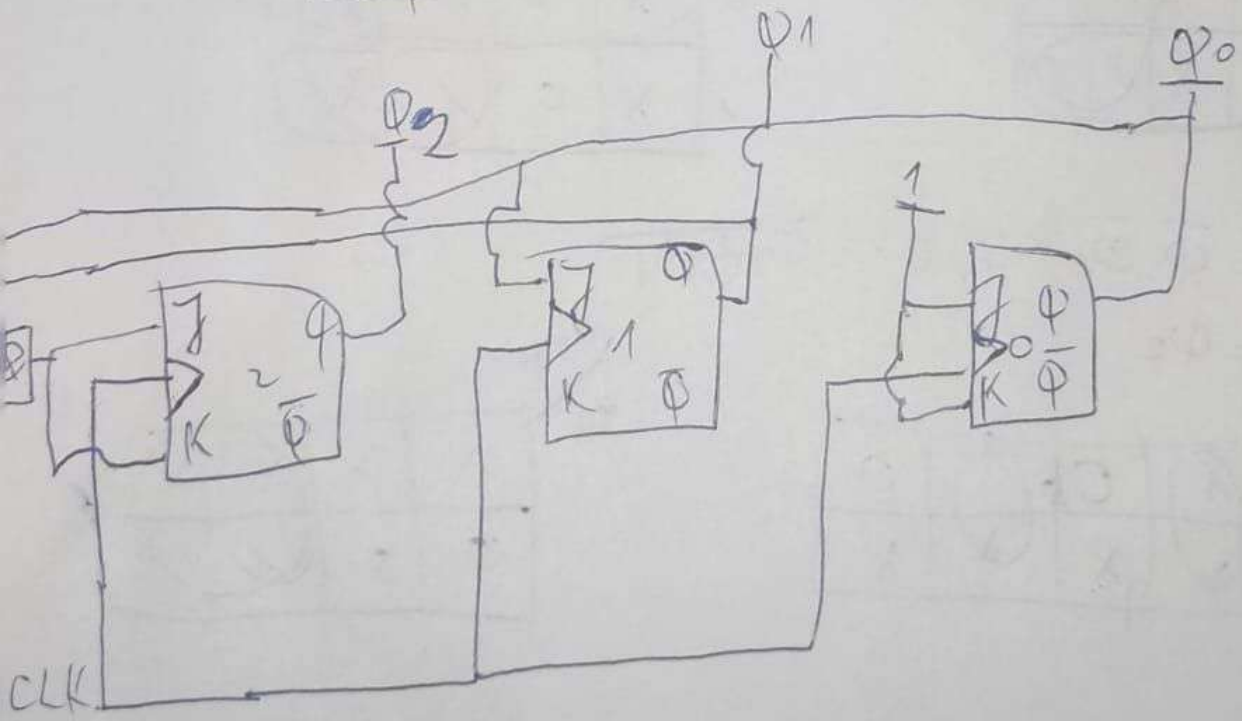




$K_1 = J_1 = Q_0$



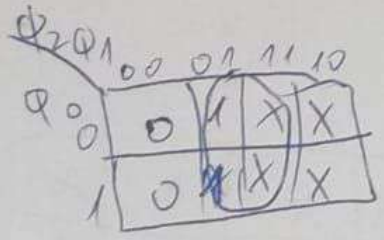




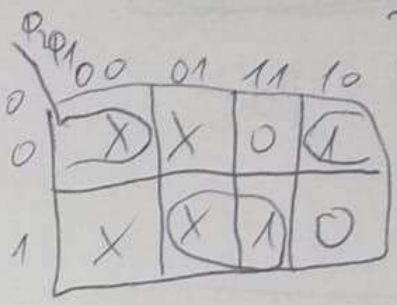
Q_2	Q_1	Q_0	Q_2'	Q_1'	Q_0'	J_2	K_2	J_1	K_1	J_0	K_0
0	0	0	0	0	1	0	X	X	1	1	X
0	0	1	0	1	0	0	X	X	X	X	0
0	1	0	1	0	0	1	X	1	X	0	X
0	1	1	1	0	1	1	X	0	X	X	0
1	0	0	1	1	0	X	1	X	0	X	1
1	0	1	0	1	0	X	1	X	0	0	X
1	1	0	1	1	0	X	0	X	1	X	1
1	1	1	0	0	0	X	1	X	X	X	1

$K_2 = \overline{Q_0 \oplus Q_1}$

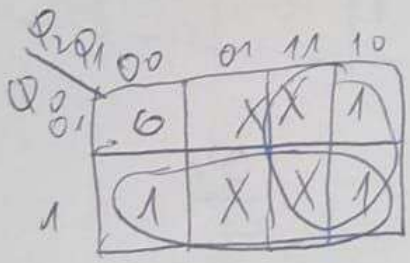
$J_1 = Q_0 + Q_2$

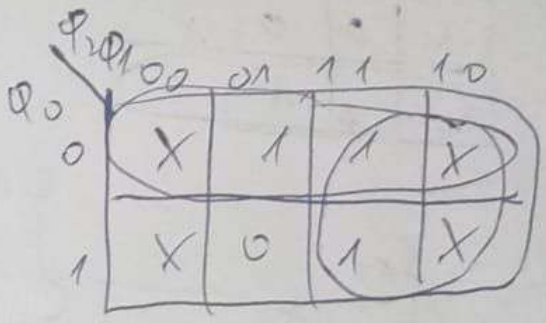


$J_2 = Q_1 Q_0$



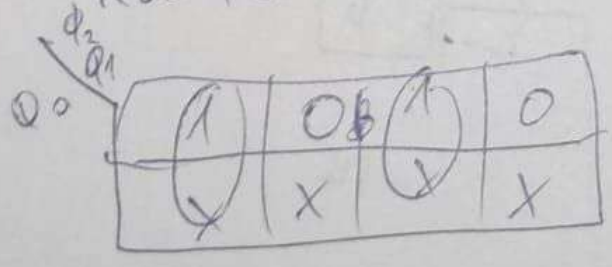
$\overline{K_1} = Q_0 + Q_2$

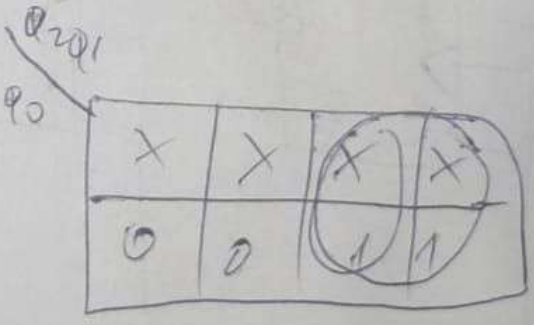


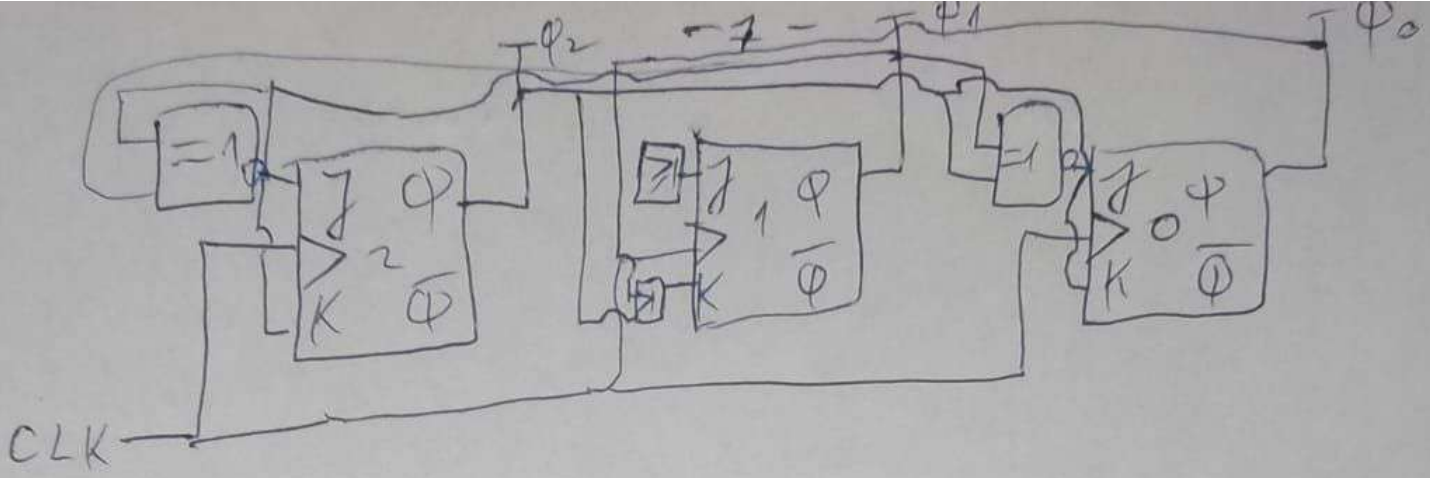


$J_0 = \bar{Q}_2 \bar{Q}_1 + Q_2 Q_1 = \overline{Q_2 \oplus Q_1}$

$K_0 = Q_2$






Q2
Q1
Q0
=1
J
Q
2
K
Q
J
Q
1
K
Q
=1
J
Q
0
K
Q
CLK