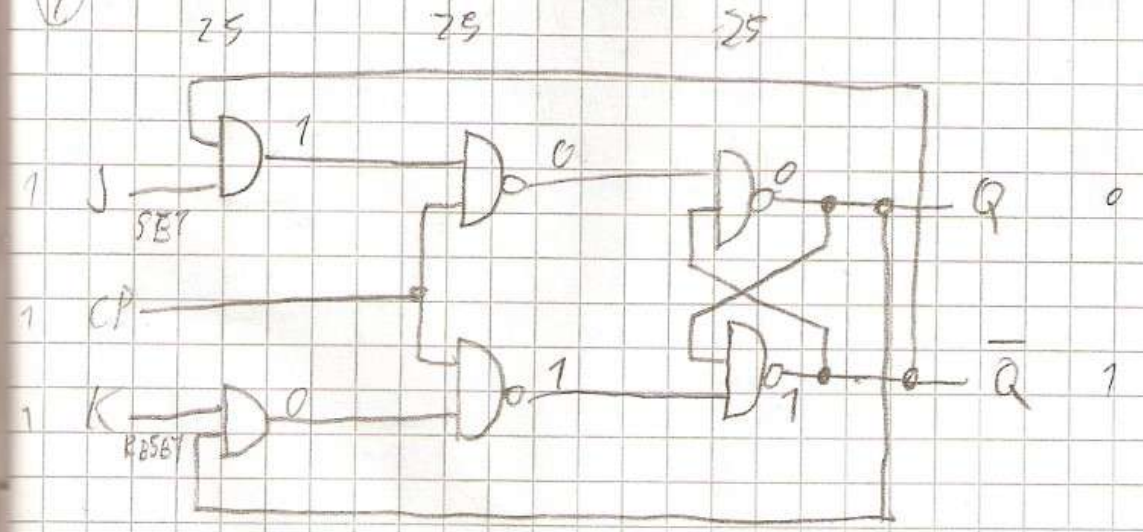
3. DOMAĆA ZADAĆA

(1)



J=1
K=1
CP=1

t_0 = 25ns (SVAKI OD SKLOPLJA)

TL	TRAJANJE NULE	50	2×25
TH	TRAJANJE JEDINICE	100	4×25

t	0	25	50	75	100	125	150	175	200	225	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600
J																									
CP																									
K																									
Q																									
$\overline{Q}$																									

?

(2.) Y <= (A OR B OR C) AND (A OR NOT B OR C) AND (A OR B OR NOT C)

A = 'U'
B = '0'
C = '1'

(U OR 0 OR 1) AND (U OR 1 OR 1) AND (U OR 0 OR 0)

1 AND 1 AND U

U

(3.) T PUMOCU D

Q_n	T	Q_{n+1}	D
0	0	0	0
0	1	1	1
1	0	1	1
1	1	0	0

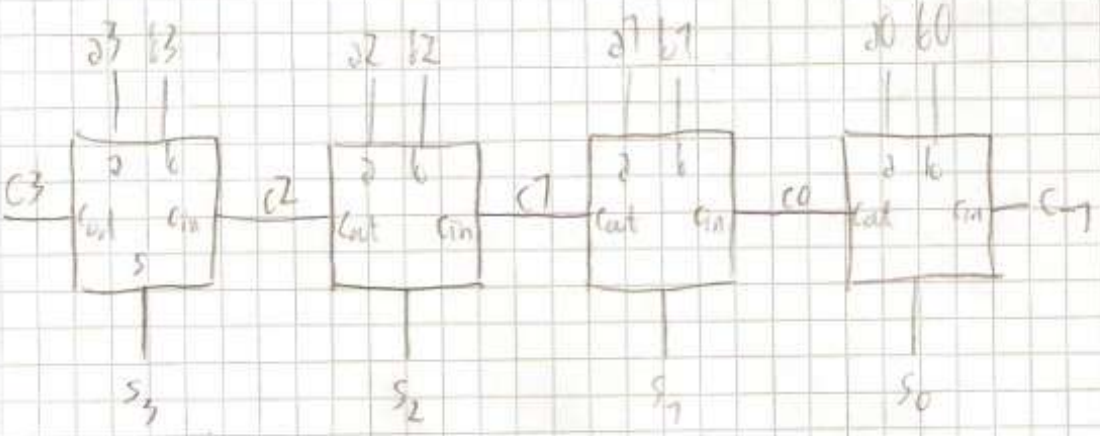
Q_n	D	Q_{n+1}
0	0	0
0	1	1
1	0	0
1	1	1

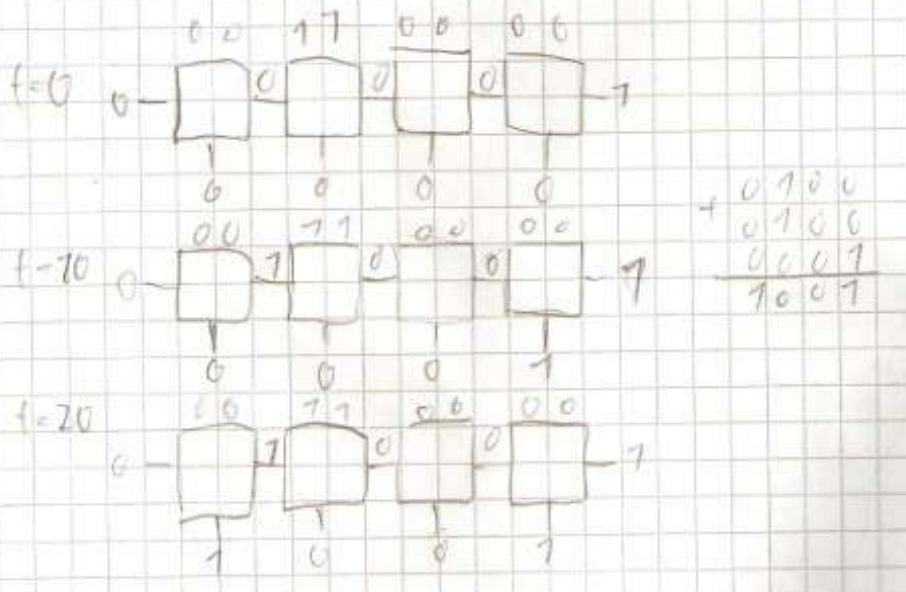
D = f(T, Q_n)

D	Q_n 0	Q_n 1
T 0	0	1
T 1	1	0

$D = \bar{T} Q_n + T \bar{Q}_n$

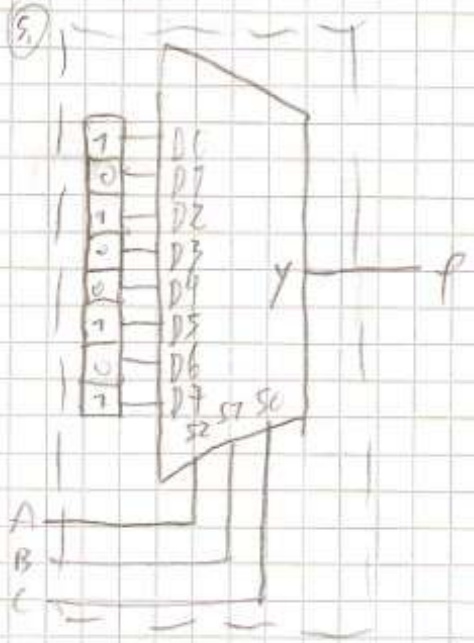
(4.)





+ 0 1 0 0
0 1 0 0
0 0 0 1
1 0 0 1

5)

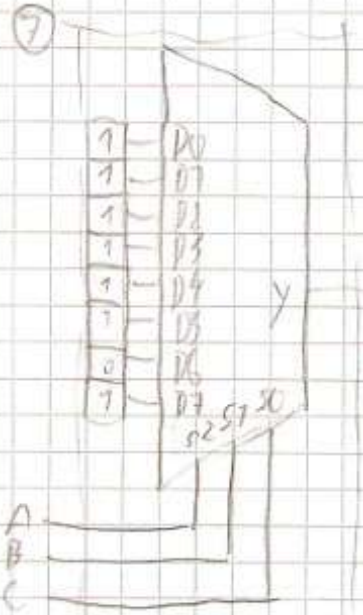


$f(A,B,C) = \prod M(1,3,4,6) = \sum m(0,2,5,7)$

	A	B	C	f
0	0	0	0	1
1	0	0	1	0
2	0	1	0	1
3	0	1	1	0
4	1	0	0	0
5	1	0	1	1
6	1	1	0	0
7	1	1	1	1

6) 4 MUX 16/1 ROZWIĄZANIE 6 VAR.

7)



$f(A,B,C) = C + \overline{AB + BC} = \bar{A} + \bar{B} + C = \prod M(6)$
$= \sum m(0,1,2,3,4,5,7)$

	A	B	C	f	
0	0	0	0	1	—
1	0	0	1	1	—
2	0	1	0	1	—
3	0	1	1	1	—
4	1	0	0	1	—
5	1	0	1	1	—
6	1	1	0	0	\
7	1	1	1	1	—

8)

	ZNAK		KOMP.	
0	0	0	1	0
1	1	1	0	1
2	0	1	1	1
3	1	0	0	0

X	Y	i1	i0
0	0	1	0
1	1	0	1
0	1	1	1
1	0	0	0

$i1 = \bar{X}$

$i0 = XY + \bar{X}Y = Y$

X	Y	i1	i0
0	0	1	0
0	1	1	1
1	0	0	0
1	1	0	1

$i1 = \bar{X}$

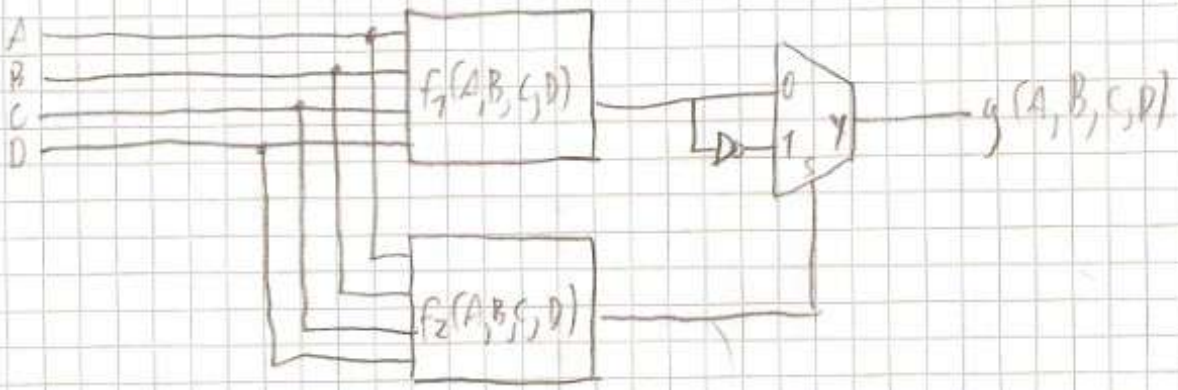
$i0 = Y$

9)

	A	B	C	Q_{n+1}
0	0	0	0	$\overline{Q_n}$
1	0	0	1	Q_n
2	0	1	0	$\overline{Q_n}$
3	0	1	1	0
4	1	0	0	$\overline{Q_n}$
5	1	0	1	$\overline{Q_n}$
6	1	1	0	1
7	1	1	1	Q_n

	Q_n	A	B	C	Q_{n+1}	
0	0	0	0	1		$\overline{Q_n}$
1	0	0	0	1	0	Q_n
2	0	0	1	0	1	$\overline{Q_n}$
3	0	0	1	1	0	0
4	0	1	0	0	1	$\overline{Q_n}$
5	0	1	0	1	1	$\overline{Q_n}$
6	0	1	1	0	1	1
7	0	1	1	1	0	Q_n
0	1	0	0	0	0	$\overline{Q_n}$
1	1	0	0	1	1	Q_n
2	1	0	1	0	0	$\overline{Q_n}$
3	1	0	1	1	0	0
4	1	1	0	0	0	$\overline{Q_n}$
5	1	1	0	1	0	$\overline{Q_n}$
6	1	1	1	0	1	1
7	1	1	1	1	1	Q_n

10)



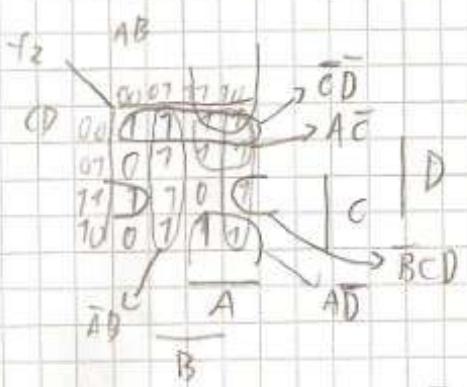
$f_1(A,B,C,D) = \sum m(9,5,8,12)$

$g(A,B,C,D) = \prod M(1,2,4,5,8,12,15) = \sum m(0,3,6,7,9,10,11,13,14)$

$f_2 = f_1 \oplus g$

	A	B	C	D	f_1	g	f_2
0	0	0	0	0	0	1	1
1	0	0	0	1	0	0	0
2	0	0	1	0	0	0	0
3	0	0	1	1	0	1	1
4	0	1	0	0	1	0	1
5	0	1	0	1	1	0	1
6	0	1	1	0	0	0	1
7	0	1	1	1	0	1	1
8	1	0	0	0	1	0	1
9	1	0	0	1	1	0	1
10	1	0	1	0	0	1	1
11	1	0	1	1	0	1	1
12	1	1	0	0	1	0	1
13	1	1	0	1	1	0	1
14	1	1	1	0	0	0	1
15	1	1	1	1	0	1	0

$f_2 = \sum m(0,3,4,5,6,7,8,9,10,11,12,13,14)$



$f_2 = \bar{C}\bar{D} + A\bar{B} + A\bar{C} + A\bar{D} + \bar{B}CD$