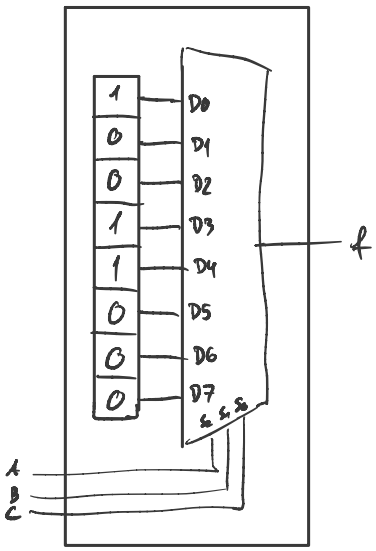
5. ZADACA

① CLB ostvaren pomoću LUT s 3 ul.
Realiziraj f kao produkt maksterma

$f(A,B,C) = M(1,2,5,6,7)$

ovo su nule

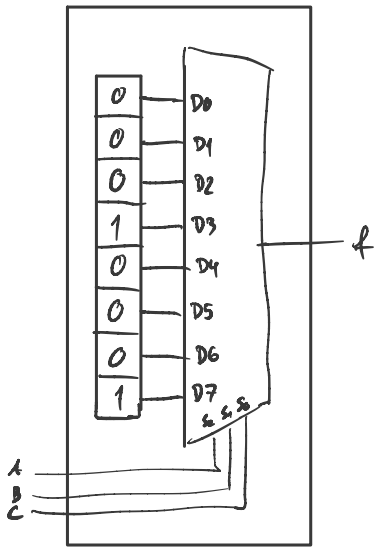
	A	B	C	f
	0	0	0	1
1	0	0	1	0
2	0	1	0	0
	0	1	1	1
	1	0	0	1
5	1	0	1	0
6	1	1	0	0
7	1	1	1	0



② CLB ostvaren uporabom LUT s 3 ulaza
Realiziraj fju:

$f(A,B,C) = ((B \text{ AND } B) \text{ AND } C) = (B \cdot B) \cdot C = BC$

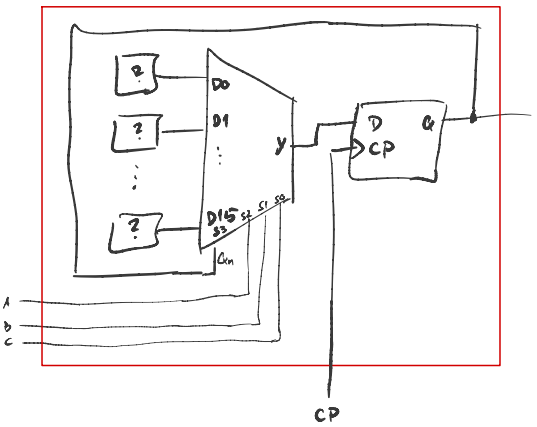
A	B	C	f
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1



③ Programirati 4-ulazni LUT s D-bistabilom tako da se dobije...

ZADANO:

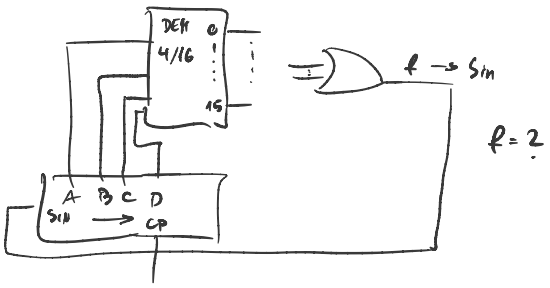
A	B	C	Q_{n+1}
0	0	0	1
0	0	1	Q_n
0	1	0	$\overline{Q_n}$
0	1	1	$\overline{Q_n}$
1	0	0	0
1	0	1	Q_n
1	1	0	$\overline{Q_n}$
1	1	1	0



Q_n	A	B	C	Q_{n+1}
0	0	0	0	1
0	0	0	1	0
0	0	1	0	1
0	0	1	1	1
0	1	0	0	0
0	1	0	1	0
0	1	1	0	1
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	0
1	0	1	1	0
1	1	0	0	0
1	1	0	1	1
1	1	1	0	0
1	1	1	1	0

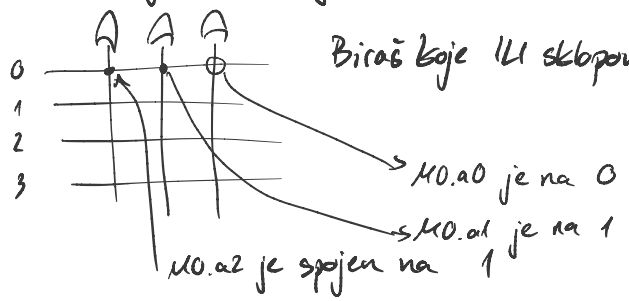
(4.)

A_n	B_n	C_n	D_n	A_{n+m}	B_{n+m}	C_{n+m}	D_{n+m}	S_{IN}	
0	0	0	0	1	0	0	0	1	0
0	0	0	1	0	0	0	0	0	1
0	0	1	0	0	0	0	1	0	2
0	0	1	1	0	0	0	1	0	3
0	1	0	0	1	0	1	0	1	4
0	1	0	1	1	0	1	0	1	5
0	1	1	0	0	0	1	1	0	6
0	1	1	1	0	0	1	1	0	7
1	0	0	0	0	1	0	0	0	8
1	0	0	1	0	1	0	0	0	9
1	0	1	0	1	1	0	1	1	10
1	0	1	1	1	1	0	1	1	11
1	1	0	0	1	1	1	0	1	12
1	1	0	1	1	1	1	0	1	13
1	1	1	0	1	1	1	1	1	14
1	1	1	1	0	1	1	1	0	15



(5) WTF? Neću to pisati.

X_1X_0 biraju operaciju. Kad odabereš operaciju npr 0, 1, 2 ili 3 tamo bude log. „1".



Biraš koje ILI sklopove spajaš na taj izlaz dekodera (za tu aritm. oper.)

M0.a2 | 0,
M0.a1 | 0,
M0.a0 | (prazno ostaviš)
⋮

Puniš brojevima izlaza dekodera npr.

M0.a2 | 0, 1, 2
a1 | 1, 2
a0 | 3

(13.)

$U_{ULZ} = 11.4V$
$t_1 = 77ms$
$U_{ULZ2} = 5.6V$
$t_2 = ?$

3-bitni pretvornik sa sukcesivnom aproksimacijom

$t \neq f(U)$

t ostaje isto (ms)

Rj: 77ms

(8)

Q_2^n	Q_1^n	Q_0^n	Q_2^{n+1}	Q_1^{n+1}	Q_0^{n+1}
0	0	0	1	0	0
0	0	1	0	1	1
0	1	0	1	0	1
0	1	1	0	0	0
1	0	0	0	1	0
1	0	1	1	1	0
1	1	0	1	1	1
1	1	1	0	0	1

(6, 7, 1, 3, 0, 4, 2, 5, 6)

⑥

Q_2^n	Q_1^n	Q_0^n	Q_2^{n+1}	Q_1^{n+1}	Q_0^{n+1}	S2	R2	S1	R1	S0	R0	
0	0	0	1	0	1	1	0	0	x	1	0	0
0	0	1	0	1	1	0	x	1	0	x	0	1
0	1	0	1	1	0	1	0	x	0	0	x	2
0	1	1	0	0	0	0	x	0	1	0	1	3
1	0	0	1	1	1	x	0	1	0	1	0	4
1	0	1	0	1	0	0	1	1	0	0	1	5
1	1	0	1	0	0	x	0	0	1	0	x	6
1	1	1	0	0	1	0	1	0	1	x	0	7

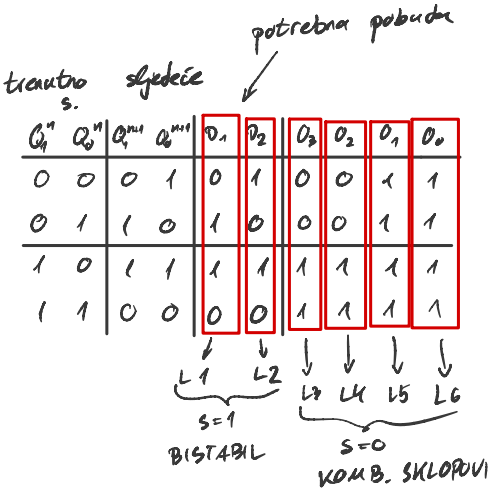
Q^n	Q^{n+1}	S	R
0	0	0	x
0	1	1	0
1	0	0	1
1	1	x	0

⑦

	D	Q_3^n	Q_2^n	Q_1^n	Q_0^n	Q_3^{n+1}	Q_2^{n+1}	Q_1^{n+1}	Q_0^{n+1}
0	0	0	0	0	0	0	0	1	0
1	0	0	0	0	1	0	0	1	1
2	0	0	0	1	0	0	1	0	0
3	0	0	0	1	1	0	1	0	1
4	0	0	1	0	0	0	1	1	0
5	0	0	1	0	1	0	1	1	1
6	0	0	1	1	0	1	0	0	0
7	0	0	1	1	1	1	0	0	1
8	0	1	0	0	0	1	0	1	0
9	0	1	0	0	1	1	0	1	1
10	0	1	0	1	0	1	1	0	0
11	0	1	0	1	1	1	1	0	1
12	0	1	1	0	0	1	1	1	0
13	0	1	1	0	1	1	1	1	1
14	0	1	1	1	0	0	0	0	0
15	0	1	1	1	1	0	0	0	1
16	1	0	0	0	0	1	1	0	1
17	1	0	0	0	1	1	1	1	0
18	1	0	0	1	0	1	1	1	1
19	1	0	0	1	1	0	0	0	0
20	1	0	1	0	0	0	0	0	1
21	1	0	1	0	1	0	0	1	0
22	1	0	1	1	0	0	0	1	1
23	1	0	1	1	1	0	1	0	0
24	1	1	0	0	0	0	1	0	1
25	1	1	0	0	1	0	1	1	0
26	1	1	0	1	0	0	1	1	1
27	1	1	0	1	1	1	0	0	0
28	1	1	1	0	0	1	0	0	1
29	1	1	1	0	1	1	0	1	0
30	1	1	1	1	0	1	0	1	1
31	1	1	1	1	1	1	1	0	0

C=1 x x x x x 0 0 0 0

(12.)



Q_1^n	Q_0^n	Q_1^{n+1}	Q_0^{n+1}	D_1	D_2	D_3	D_2	D_1	D_0
0	0	0	1	0	1	0	0	1	1
0	1	1	0	1	0	0	0	1	1
1	0	1	1	1	1	1	1	1	1
1	1	0	0	0	0	1	1	1	1

(9.)

B: 6 → 8 → 13 → 4 → 5 → 3 → 14 → 10 → 2 → 7 → 12 → 15 → 9 → 0 → 1 → 11

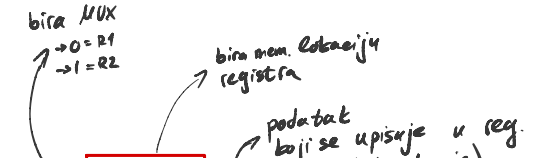
ROM: 0 → 1 → 2 → 3 → 4 → 5 → 6 → 7 → 8 → 9 → A → B → C → D → E → F

B	ROM
0	D
1	E
2	8
3	5
4	3
5	4
6	0
7	9
8	1
9	C
10	7
11	F
12	A
13	2
14	6
15	B

(10)

Zadani ciklus:

1, 4, 13, 12, 7, 0, 15, 11, 2, 9, 8, 6, 3, 5, 10, 14



	Q_3^n	Q_2^n	Q_1^n	Q_0^n	D
R1	0	0	0	0	F
	0	0	0	1	4
	0	0	1	0	9
	0	0	1	1	5
	0	1	0	0	D
	0	1	0	1	A
	0	1	1	0	3
	0	1	1	1	0
R2	1	0	0	0	6
	1	0	0	1	8
	1	0	1	0	E
	1	0	1	1	2
	1	1	0	0	7
	1	1	0	1	C
	1	1	1	0	1
	1	1	1	1	B

12, 15, 7, 11, 13, 2, 10, 3, 8, 9, 5, 14, 0, 4, 1, 6

	Q_3^n	Q_2^n	Q_1^n	Q_0^n	D
R1	0	0	0	0	4
	0	0	0	1	6
	0	0	1	0	A
	0	0	1	1	8
	0	1	0	0	1
	0	1	0	1	E
	0	1	1	0	C
	0	1	1	1	B
R2	1	0	0	0	9
	1	0	0	1	5
	1	0	1	0	3
	1	0	1	1	D
	1	1	0	0	F
	1	1	0	1	2
	1	1	1	0	0
	1	1	1	1	7