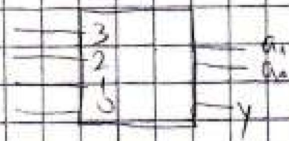
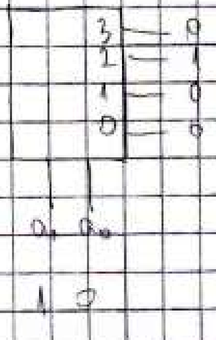
MASOVNE DIGITALNA

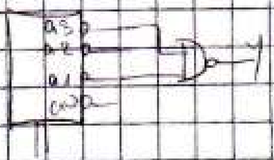
PRIORITETNI KODER



- aktivni ulaz pretvara u binarnu kombinaciju, kod više aktivnih ulaza izbacuje ulaz sa najvišim indeksom
- u slučaju da nema aktivnog ulaza, tada je y u nuli

DEKODER

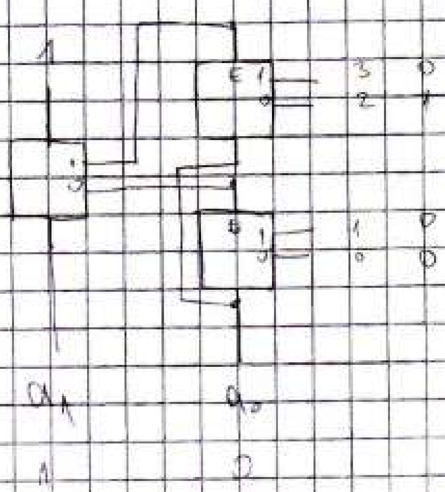




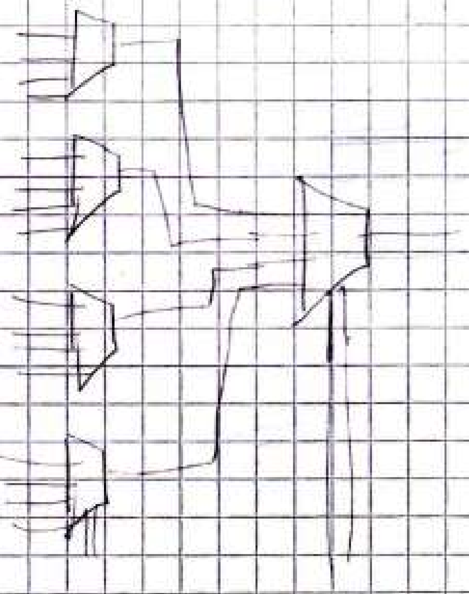
$y = \overline{a_3}\cdot\overline{a_1} = \overline{\overline{a_3}} + \overline{\overline{a_1}} = a_3 + a_1$

isto i sa ILI sklopom

- binarnu kombinaciju na ulazu šalje na izlaz sa odgovarajućim indeksom te binarne kombinacije



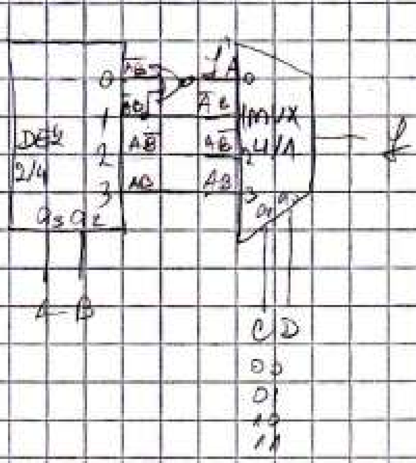
MUX



- tablice rezidualne f-je samo od 1 varijable

ZAD 1

$f(A, B, C, D)$

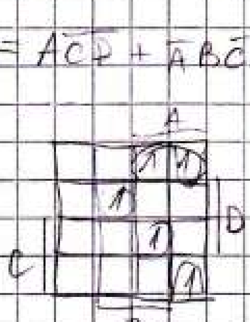


$$f' = \overline{\bar{A}\bar{B} + \bar{A}B} = \overline{\bar{A}\bar{B}} \cdot \overline{\bar{A}B} = (\bar{\bar{A}} + \bar{\bar{B}})(\bar{\bar{A}} + \bar{B})$$

$$= (A + B)(A + \bar{B}) = A + A\bar{B} + AB$$

$$= A + A(\bar{B} + B) = A$$

$$f = A\bar{C}\bar{D} + \bar{A}B\bar{C}D + A\bar{B}C\bar{D} + ABCD$$



$$f_{min} = A\bar{C}\bar{D} + A\bar{B}\bar{D} + \bar{A}B\bar{C}D + ABCD$$

(2)

	$b_3b_2b_1b_0$				9-kompl $k_3k_2k_1k_0$			
	0	0	0	0	X	X	X	X
0	0	0	0	1	1	0	1	1
1	0	0	1	0	1	0	1	0
2	0	0	1	1	1	0	0	1
3	0	1	0	0	1	0	0	0
	0	1	0	1	X	X	X	X
4	0	1	1	0	0	1	1	1
5	0	1	1	1	0	1	1	0
6	1	0	0	0	0	1	0	0
7	1	0	0	1	0	0	1	1
8	1	0	1	0	0	0	1	0
9	1	0	1	1	0	0	0	1
	1	1	0	0	X	X	X	X
	1	1	0	1	X	X	X	X
	1	1	1	0	X	X	X	X
	1	1	1	1	X	X	X	X

0-3 ⇒ 1-4
4-9 ⇒ 6-11

min k_2 = ?

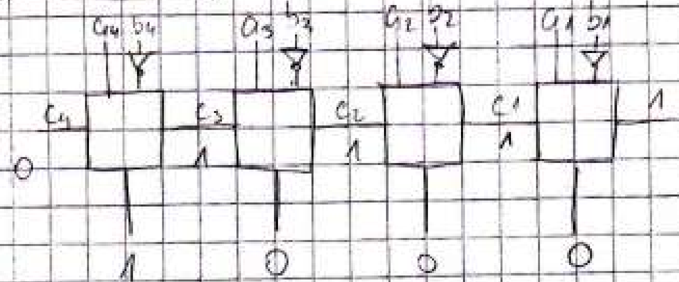
		b_3	
X	0	X	0
0	X	X	0
0	1	X	0
0	1	X	0

b_0, b_1, b_2

$k_m = b_2 b_1 + b_2 \overline{b_1} \overline{b_0}$ ✓

$k_m = b_2 b_1 + \overline{b_2 b_1 b_0}$

ZBRAJALO



$c_4c_3c_2c_1 = 0111$

treba napraviti oduzimalo pomoću 4 zbrajala i 4 NE sklopa pomoću B-komplementa

$a = 0110$
$b = 1110$
$b' = 0001$

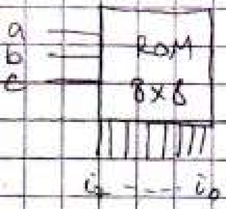
koji su prijenosi $c_4c_3c_2c_1$?

ZBRAJALO + ODUZIMALO:

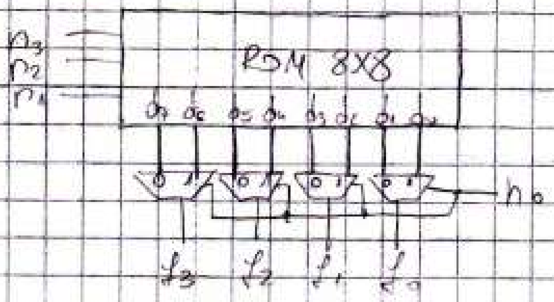
na b ulaz stavimo XOR sklop, i tada sklop radi kao zbrajalo kada je $c_0=0$, a kada je $c_0=1$, tada radi kao oduzimalo

- vrijednost korektora kod BCD zbrajala je 6

MEMORIJE



ZAD



$f(n) = n \oplus \hat{n}$

$\hat{n} = n << 1$

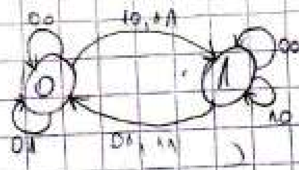
n_3 n_2 n_1 n_0	$\hat{n}$	f
0000	0000	0000
0001	0010	0011
0010	0100	0110
0011	0110	0101
0100	1000	0110
0101	1010	1111
0110	1100	1010
0111	1110	1001
1000	0001	1001
1001	0011	1010
1010	0101	1111
1011	0111	1100
1100	1001	0101
1101	1011	0110
1110	1101	0011
1111	1111	0000

$d_7 d_6 d_5 d_4$	$d_3 d_2 d_1 d_0$		$n_3 n_2 n_1$	
0000	0101	← za	000	
1100	0110	← za	100	4
C	6			
1111	1010	← za	101	5
F	A			
0011	0110	← za	110	6
3	6			
0000	1010	← za	111	7
0	A			

od 4-7

C6, FA, 36, 0A

4.



S R	Q_n
00	Q_n
01	0
10	1
11	X

J K	Q_n
00	Q_n
01	0
10	1
11	$\overline{Q_n}$

T	Q
0	Q_n
1	$\overline{Q_n}$

D	Q_n
0	0
1	1

5.

Q_n J K	Q_{n+1}	S R
000	0	0X
001	0	0X
010	1	10
011	1	10
100	1	X0
101	0	01
110	1	X0
111	0	01

$S = \overline{Q_n} J \overline{K} + \overline{Q_n} J K$

$= Q_n J(\overline{K} + K) = Q_n J$

$R = Q_n \overline{J} K + Q_n J K$

$= Q_n K(\overline{J} + J)$

$= Q_n K$