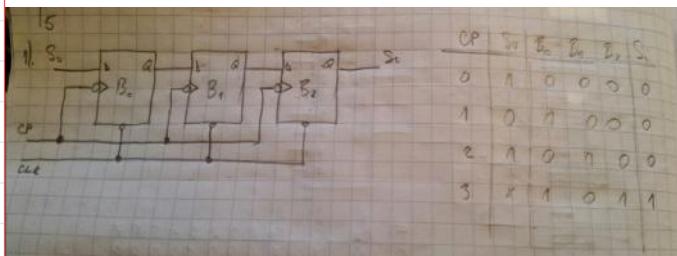


Skripta za 2. maturitet iz ODE. Kucar 2018

16-max 10 bodova (ostvareno bodova-----)

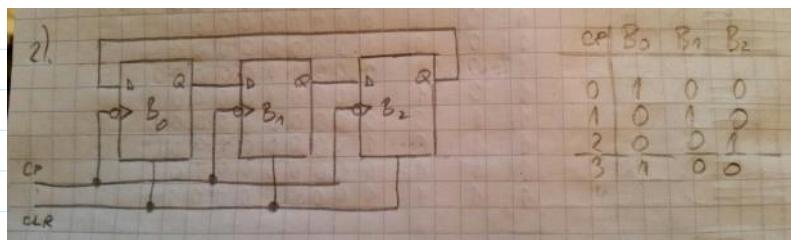
1.(2boda) Serijski upisati podatak $B_0=B_1=B_2=101$ u posmačni registar sa D bistabilima, te analizirati rad prikazom tablice stanja. Nacrtati shemu spoja.

→ Neuna varijacija



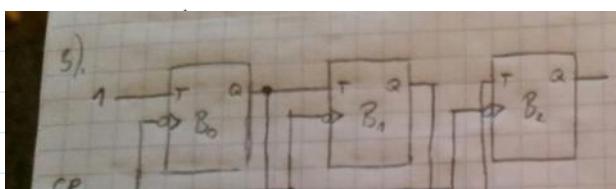
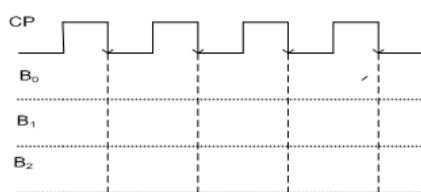
2.(2boda) Nacrtati prstenasto brojilo izvedeno sa 3 D bistabila, te analizirati rad prikazom tablice stanja i dijagramom stanja. Početno stanje brojila je $B_0=B_1=B_2=100$

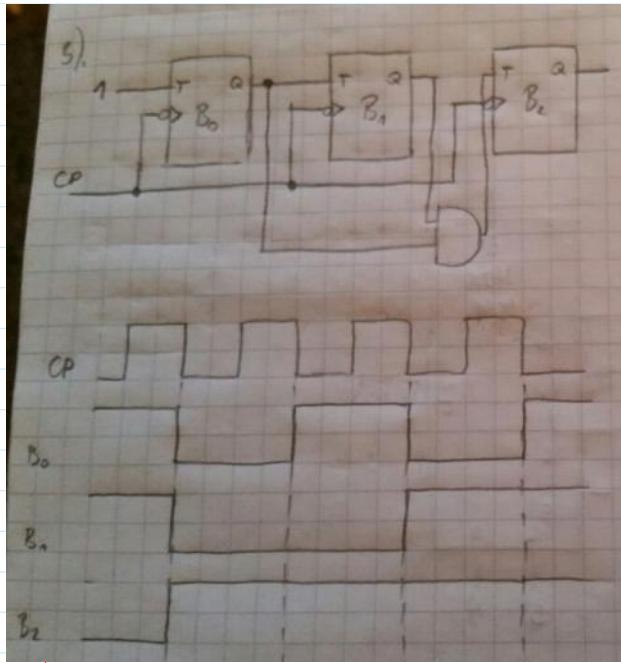
→ može biti Johnsonovo



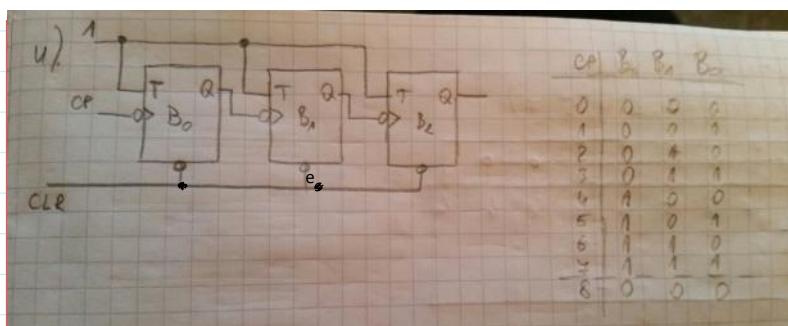
3. (3boda) Nacrtati shemu 3-bitnog sinkronog binarnog brojila. Koristiti bridom okidane T bistabile. Zadano je početno stanje brojila: $B_0B_1B_2=110$ Nacrtati valne oblike na izlazima bistabila za prva 4 taktna impulsa.

→ može biti još paralelno ili
jenjsko ali u slučaju 3bita
je uvek ista stanja

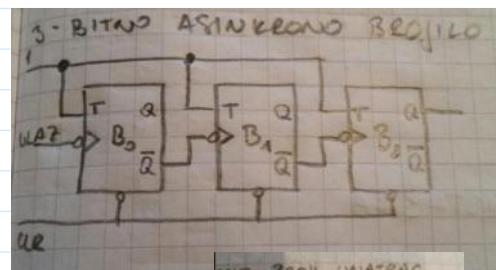




3. (3boda) Nacrtati shemu 3-bitnog binarnog asinkronog brojila. Napisati tablicu brojanja.



→ možemo brojati u
Naprijed ; unatrag
↓



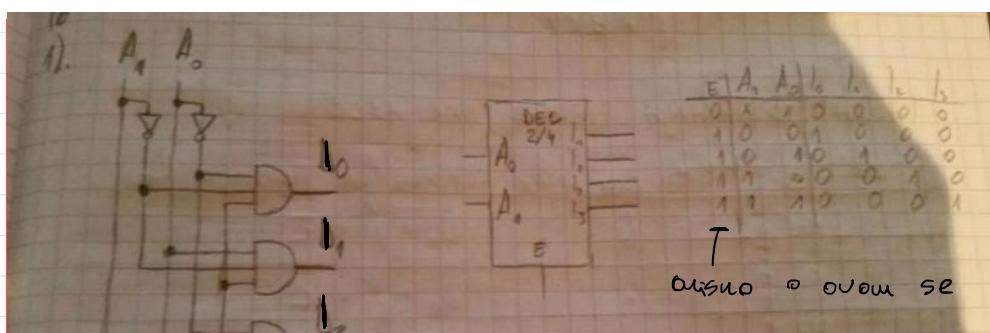
tablica se prederene

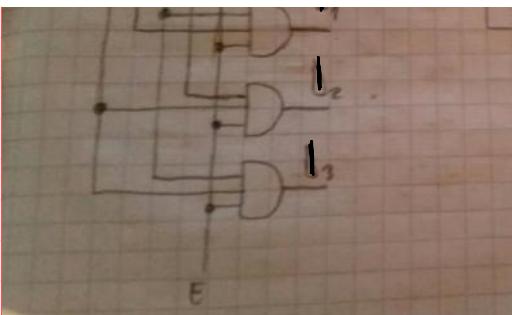
$Cp_1 \rightarrow Cp_7$

3-BITNO ASINKRONO BROJILO		TABLICA BROJ UNATRAG		
UAZI	UAZI	B_0	B_1	B_2
0	0	0	0	0
1	1	1	1	0
2	1	1	0	0
3	1	0	1	0
4	1	0	0	1
5	0	1	1	0
6	0	1	0	0
7	0	0	0	1
8	0	0	0	0

17-max 8 bodova (ostvareno bodova-----)

1.(1-bod) Nacrtati simbol i logičku shemu dekodera 2/4, te napisati tablicu stanja.

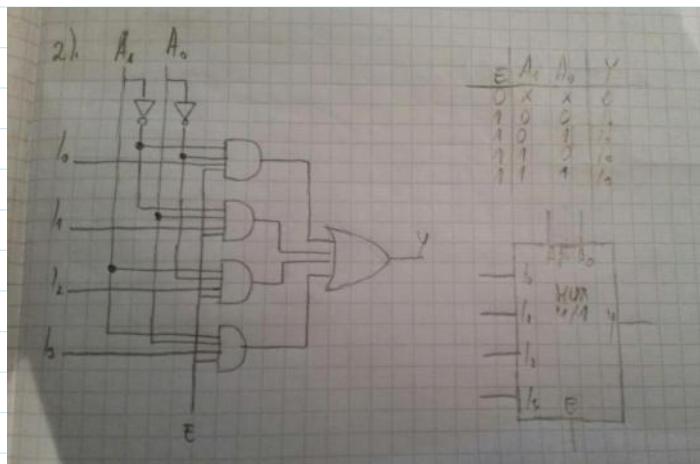




unos = ovom se aktiviraju drugi

E&&A ₁ && A ₂			
1	1	1	1
0	1	1	0
			:

2. (1-bod) Nacrtati simbol i logičku shemu multipleksora 4/1, te napisati tablicu stanja.

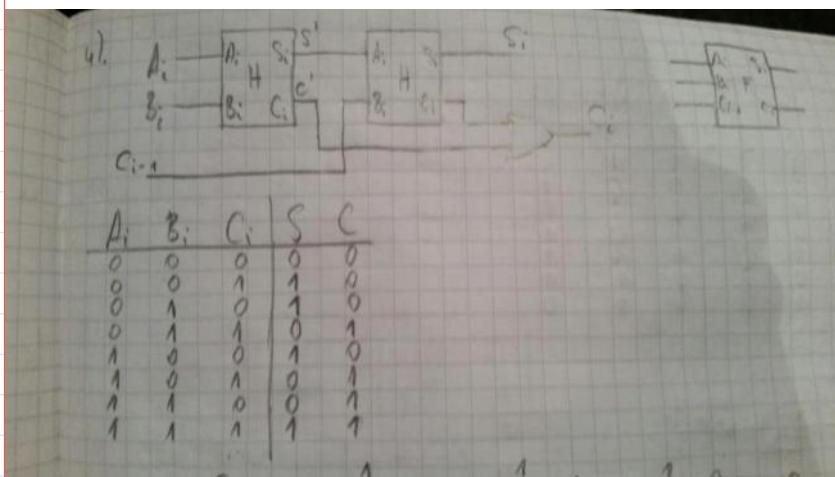


3.(2-boda) Pomoću multipleksora 4/1 realizirati logičku funkciju

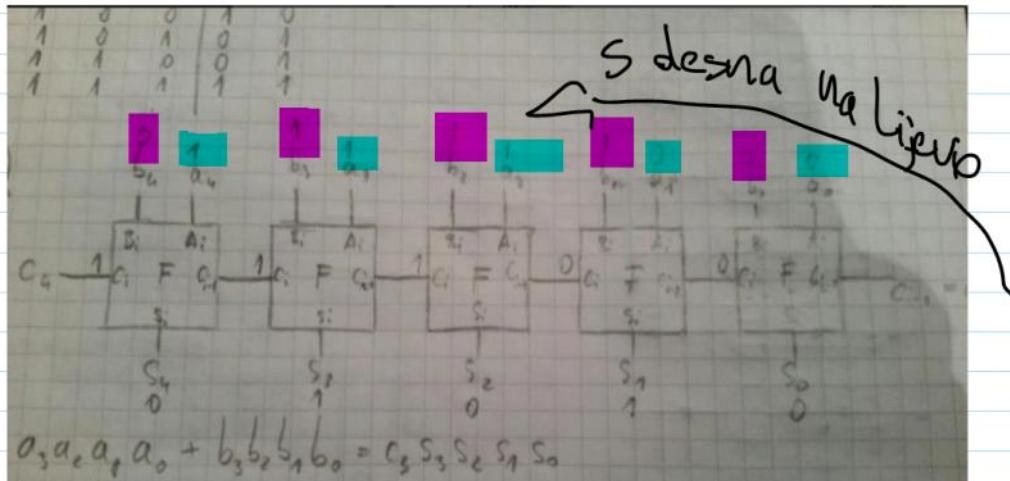
$$f(A, B, C) = \sum(0, 3, 4, 5, 7)$$



4. (1-bod) Nacrtati simbol i shemu potpunog zbrajala (pomoću poluzbrajala) i napisati tablicu stanja potpunog zbrajala.



5. (3-boda) Nacrtati shemu paralelnog zbrajala, te prikazi zbrajanje dva broja na primjeru zbroja brojeva 28 i 14.



$$\begin{array}{r}
 28 \\
 \hline
 16 \quad 8 \quad 4 \quad 2 \quad 1 \\
 - 1 \quad 1 \quad 1 \quad 0 \quad 0 \\
 \hline
 1 \quad 1 \quad 1 \quad 0 \quad 0
 \end{array}
 \rightarrow 5 \text{ bits}$$

$$\begin{array}{r}
 14 \\
 \hline
 8 \quad 4 \quad 2 \\
 - 1 \quad 1 \quad 1 \quad 0 \\
 \hline
 0 \quad 1 \quad 1 \quad 0
 \end{array}
 \rightarrow 4 \text{ bits}$$

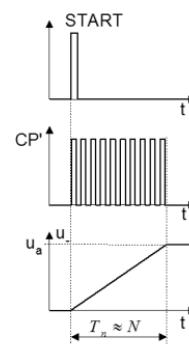
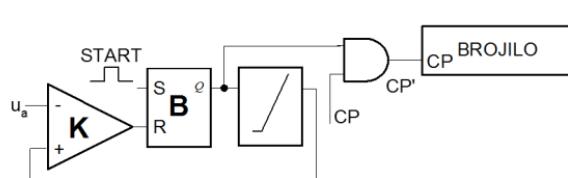
trebamo 5 full addera

I8-max 8 boda(ostvareno bodova-----)

1. (3-boda) Nacrtati shemu DA pretvornika s težinskim otporima za pretvorbu 4 bitnog binarnog broja u analogni oblik. Označiti vrijednosti svih otpornika, ako otpornik koji odgovara najznačajnjem bitu ima vrijednost od $2k\Omega$.

2. (2-boda) Izračunati iznos maksimalnog izlaznog napona DA pretvornika, ako se za podatak 11001000 dobije na izlazu vrijednost napona od 10V, a za podatak 00000000 se dobije 0V.

3.(3boda) Nacrtati shemu Wilkinsonovog AD pretvornika i na vremenskom dijagramu analizirati rad.



I9-max 4 boda(ostvareno bodova-----)

1.(2-bod) Nacrtati matrični prikaz permanentne memorije od 8 trobitnih riječi čiji sadržaj će odgovarati rješenju zadanih funkcija:

$$f_1 = (\overline{A} + \overline{B}) C ; f_2 = AB + C ; f_3 = \overline{ABC}$$

→ dekoder 3 / 8

1) 8

	A	B	C	$\overline{A+B}$	f_1	f_2	f_3
0	0	0	0	1	0	0	1
0	0	0	1	0	1	0	1
0	0	1	0	0	0	0	1
0	0	1	1	0	0	1	1
1	0	0	0	0	0	1	1
1	0	0	1	0	0	1	1
1	0	1	0	0	0	1	1
1	0	1	1	0	0	1	0

$A \quad B \quad C$

$S_3 \quad S_2 \quad S_1$

$C_3 \quad C_2 \quad C_1$

2.(1-bod) Nacrtati simbolički prikaz memorijске hijerarhije u računarskom sustavu

3. (1-bod) Nacrtati i objasniti organizaciju memoriskog čipa

— ostalo

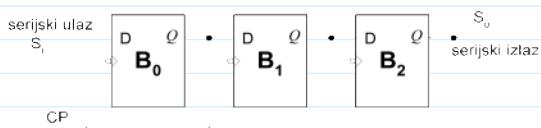
15-max 10 bodova(ostvareno bodova-----)

1. (2-bod) Serijski upisati podatak $B_0=B_1=B_2=110$ u posmačni registar izveden sa D bistabilima, te analizirati rad prikazom tablice stanja. Nacrtati shemu spoja.

(unisup je obrnuto od strelice)

S_i	B_0	B_1	B_2	S_o
0	0	0	0	0
1	0	0	0	0
2	1	0	0	0
3	1	1	0	0

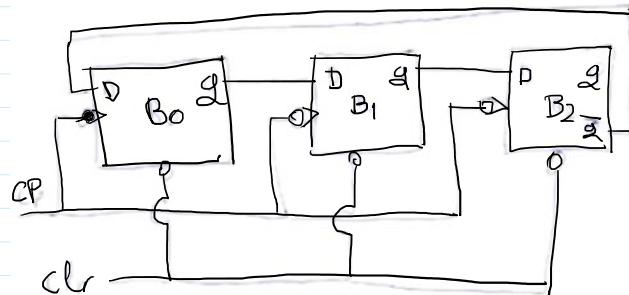
(mogući paralelni izlazi)



- 2.(3-boda) Nacrtati Johnsonovo brojilo izvedeno sa tri D bistabila, te analizirati rad prikazom tablice stanja i dijagramom stanja.

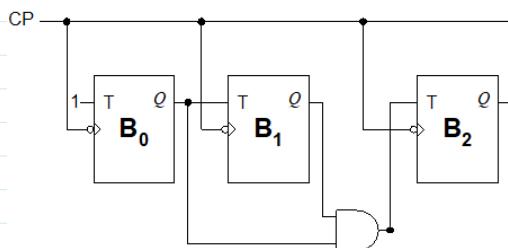
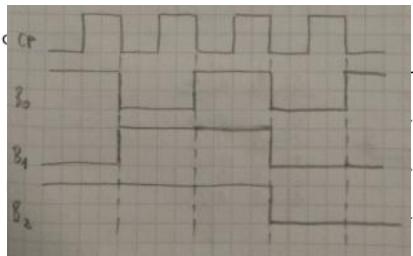
inventivna ga i urati

CP	B_0	B_1	B_2
0	0	0	0
1	1	0	0
2	1	1	0
3	1	1	1
4	0	1	1
5	0	0	1
6	0	0	0



101
010
101
010
101

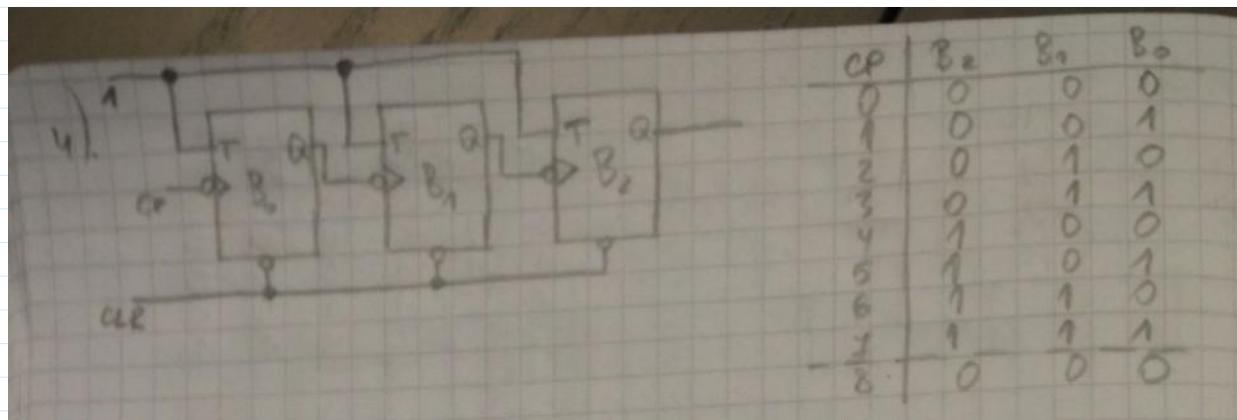
3. (3-boda) Nacrtati shemu 3-bitnog sinkronog binarnog brojila. Koristiti negativnim bridom okidane T bistabile. Zadano je početno stanje brojila: $B_0B_1B_2=101$. Nacrtati valne oblike na izlazima bistabila za prva 4 taktna impulsa.



CP	B_0	B_1	B_2
0	1		
1	0		
2		1	
3		0	1
4			0
5			1
6			0
7			1
8	0	0	0

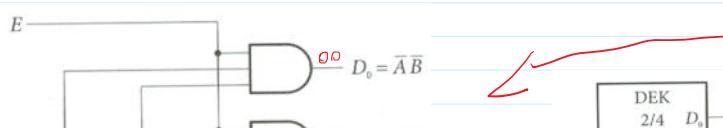
olekanski se
ponećava

4. (2-boda) Nacrtati shemu trobitnog binarnog asinkronog brojila koje broji naprijed i analizirati rad prikazom tablice stanja.

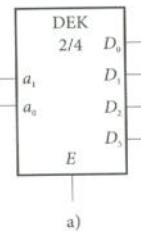
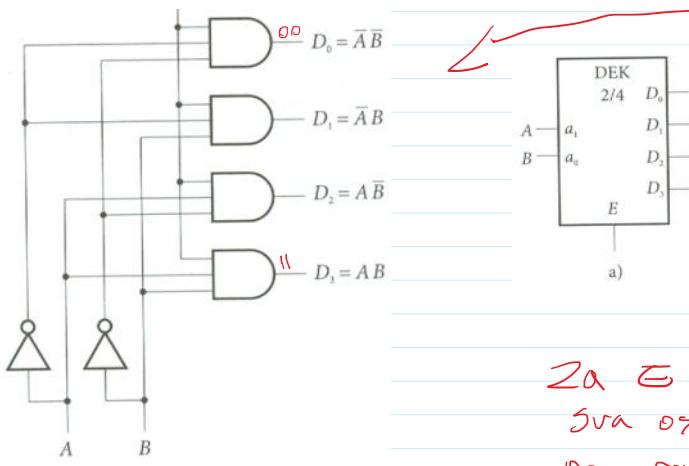


16-max 10 bodova (ostvareno bodova---+-----)

- 1.(2-bod) Nacrtati simbol i logičku shemu dekodera 2/4, te napisati tablicu stanja.



00	
01	
10	
11	

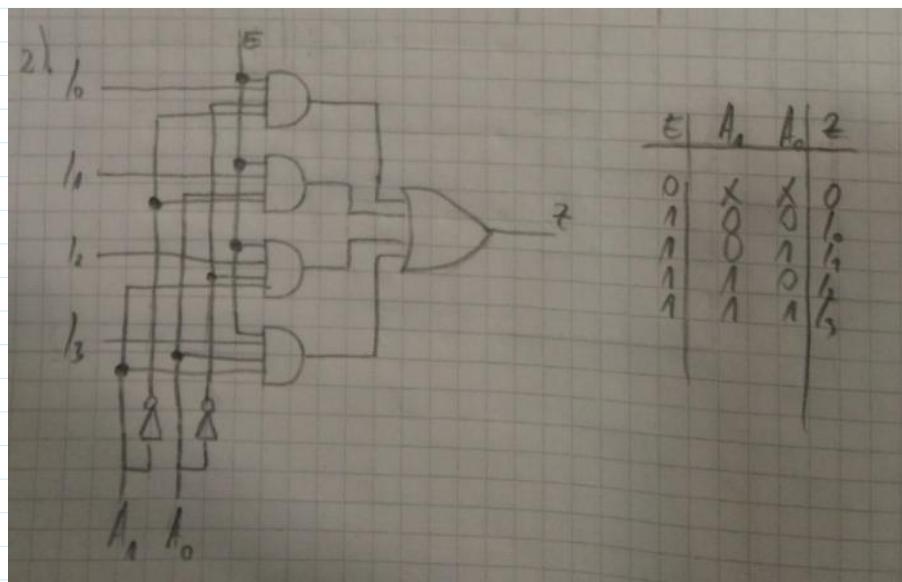


b)

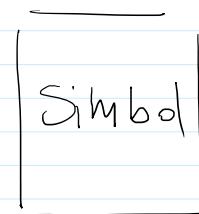
E	A	B	D ₀	D ₁	D ₂	D ₃
0	X	X	0	0	0	0
1	0	0	1	0	0	0
1	0	1	0	1	0	0
1	1	0	0	0	1	0
1	1	1	0	0	0	1

Za $E=1$ radi za
sva ostala stanja
ne radi

2. (2-bod) Nacrtati simbol i logičku shemu multipleksora 4/1, te napisati tablicu stanja.

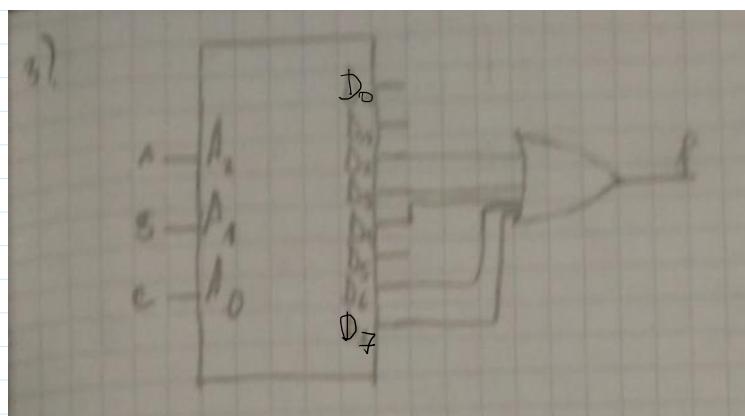


E	A ₁	A ₀	1	2	3	4
0	X	X	0	0	0	0
1	0	0	I ₀	I ₁	I ₂	I ₃
1	0	1	I ₀	I ₁	I ₂	I ₃
1	1	0	I ₀	I ₁	I ₂	I ₃
1	1	1	I ₀	I ₁	I ₂	I ₃



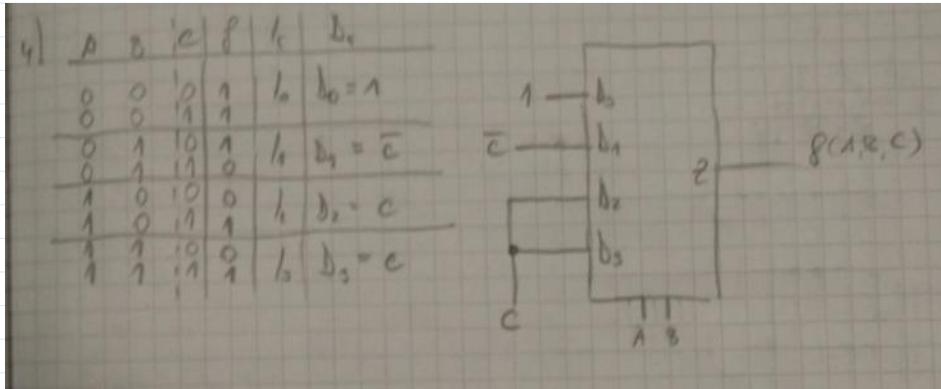
3. (3-boda) Pomoću dekodera realizirati logičku funkciju

$$f(A, B, C) = \bar{A}BC + A\bar{C} + B\bar{C} + ABC$$

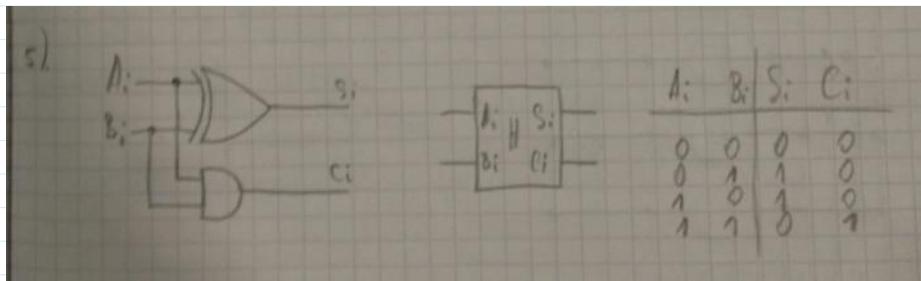


4.(1-bod) Pomoću multipleksora 8/1 realizirati logičku funkciju

$$f(A, B, C) = \sum(0, 1, 2, 5, 7)$$

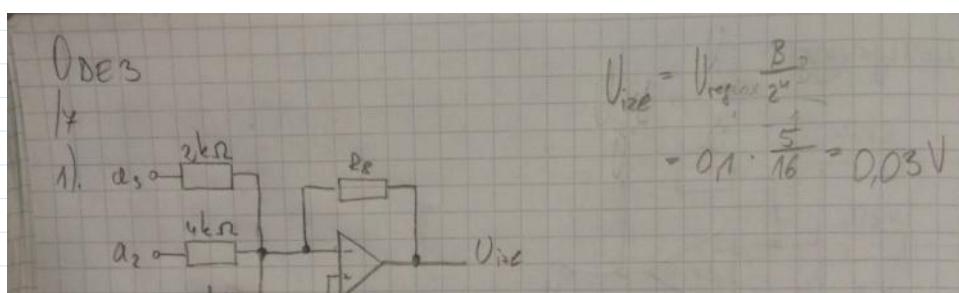


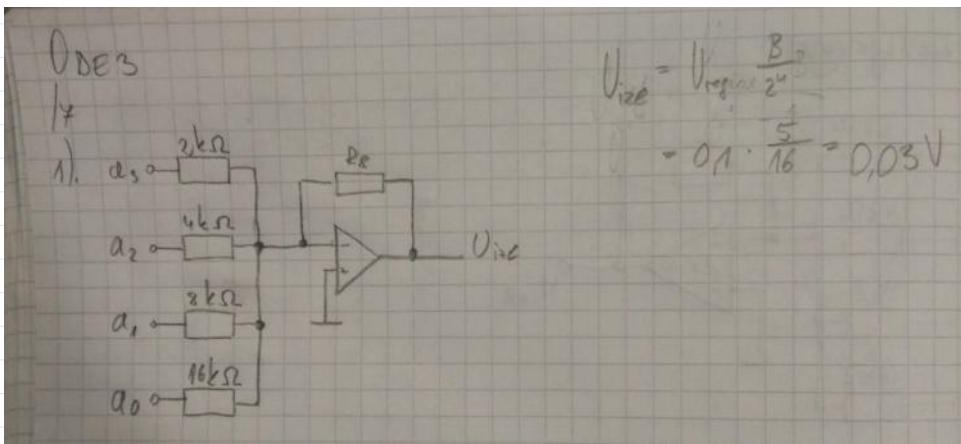
5. (2-boda) Nacrtati simbol i shemu nepotpunog zbrajala i napisati pripadajuću tablicu stanja.



I7-max 8 boda(ostvareno bodova-----)

1.(4-boda) Nacrtati shemu DA pretvornika za pretvorbu 4-bitnog binarnog broja u analogni oblik. Označiti vrijednosti svih otpornika, ako otpornik koji odgovara najznačajnijem bitu ima vrijednost od $2k\Omega$. Odrediti vrijednost izlaznog napona, ako je na ulaz dovedena binarna kombinacija 101, uz napon rezolucije od 0,1V.





2. **(1-bod)** Izračunati maksimalni iznos izlaznog napona DA pretvornika, ako se za podatak 11001010 dobije na izlazu vrijednost napona od 20V, a za podatak 00000000 se dobije 0V.

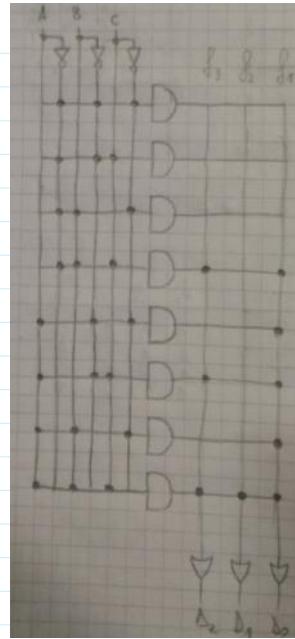
3. **(3-boda)** Nacrtati shemu Wilkinsonovog AD pretvornika i na vremenskom dijagramu analizirati rad.

I8-max 6 boda(ostvareno bodova-----)

1. (3-boda) Nacrtati matrični prikaz permanentne memorije čiji sadržaj će odgovarati rješenju zadanih funkcija: $f_1 = A + BC$; $f_2 = ABC$; $f_3 = (A + B)^*C$ Odrediti sadržaj memorije na lokaciji čija je adresa 110.

1. $A \quad B \quad C \quad f_1 \quad f_2 \quad f_3$

A	B	C	f_1	f_2	f_3
0	0	0	0	0	0
0	0	1	0	0	0
0	1	0	1	0	0
0	1	1	1	0	1
1	0	0	1	0	0
1	0	1	1	0	1
1	1	0	1	1	1



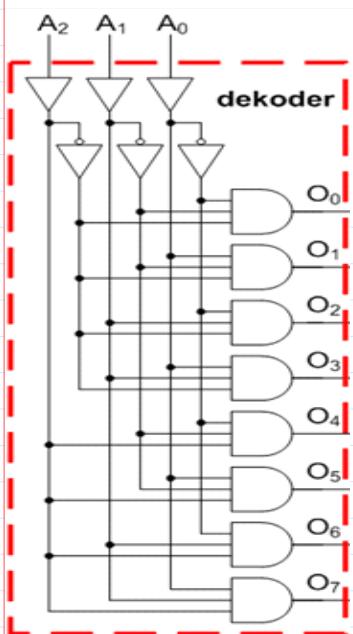
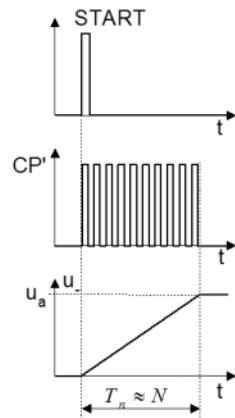
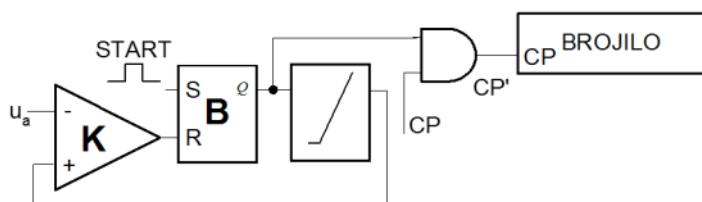
- 2.(1,5-boda) Nacrtati celiju i objasniti princip rada dinamičke memorije

- 3.(1,5-boda) Objasniti osnovne pojmove vezane za organizaciju podataka na tvrdom disku

ostalo

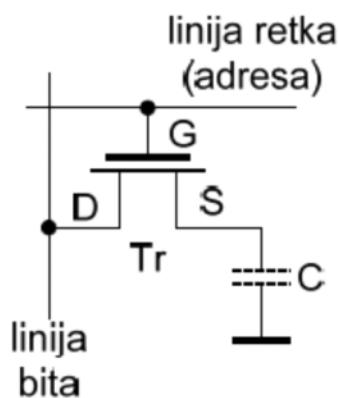
Cjeli jedan izvod:

Nacrtati shemu Wilkinsonovog AD pretvornika i na vremenskom dijagramu analizirati rad.



Nacrtati matrični prikaz permanentne memorije čiji sadržaj će odgovarati rješenju zadanih funkcija. Odrediti sadržaj memorije na lokaciji čija je adresa

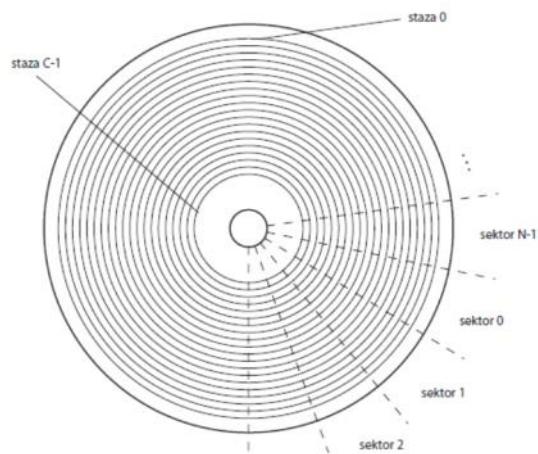
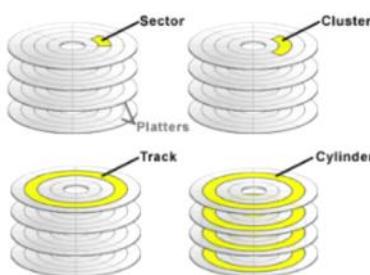
Nacrtati ćeliju i objasniti princip rada dinamičke memorije



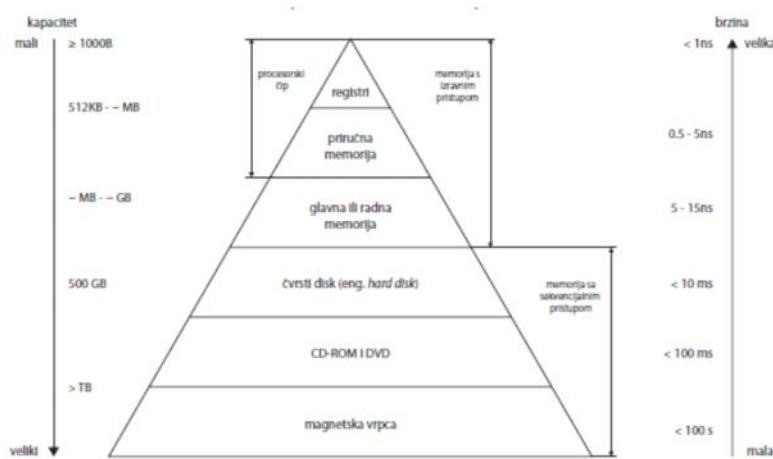
- pohranjuje podatke u kapacitivnosti
- pamti nabojem
- destruktivno čitanje
- potrebno osvježavanje svake 1-2 ms i nakon iščitavanja
- memorijski ciklus duži od vremena pristupa
- jedna memorijska ćelija realizirana s 1-2 tr.

Objasniti osnovne pojmove vezane za organizaciju podataka na tvrdom disku

- **Staza**
- **Cilindar**
- **Sektor**
- **Klaster**



Simbolički prikaz memorijске hijerarhije u računarskom sustavu

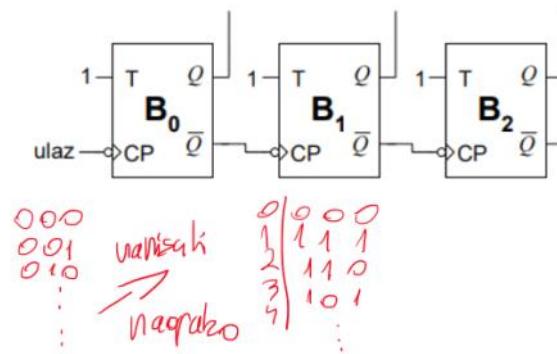


Nabrojati organizacije memorijskog polja

- 2 D - "dvodimenzijska": linearno adresiranje
- 3 D - "trodimenzijska": koincidentno adresiranje
- 2 1/2 D



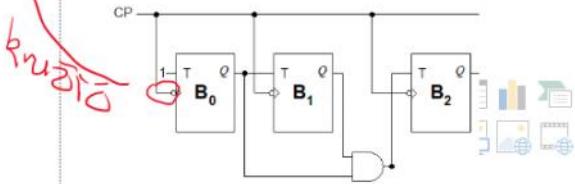
Nacrtati shemu trobitnog binarnog asinkronog brojila koje broji unazad i analizirati rad prikazom tablice stanja.



ULAZ	B_2	B_1	B_0
0	0	0	0
1	1	1	1
2	1	1	0
3	1	0	1
4	1	0	0
5	0	1	1
6	0	1	0
7	0	0	1
8	0	0	0

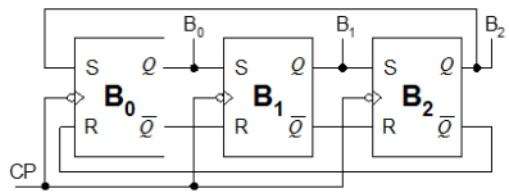
Nacrtati shemu 3-bitnog sinkronog binarnog brojila. Koristiti negativnim bridom okidane T bistabile. Zadano je početno stanje brojila: $B_0B_1B_2=110$. Nacrtati valne oblike na izlazima bistabila za prva 4 taktna impulsa.

- Click to add text



	B ₂	B ₁	B ₀
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0
5	1	0	1
6	1	1	0
7	1	1	1
8	0	0	0

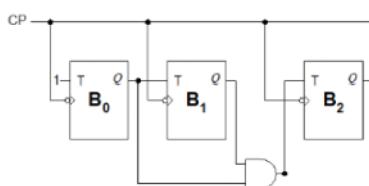
Nacrtati prstenasto brojilo izvedeno sa tri SR bistabila, te analizirati rad prikazom tablice stanja i dijagramom stanja i početnim stanjem $B_0B_1B_2=100$.



CP	B ₀	B ₁	B ₂
0	1	0	0
1	0	1	0
2	0	0	1
3	1	0	0

isto kao 3. slajz
samo što je druga shema

Nacrtati shemu 3-bitnog sinkronog binarnog brojila. Koristiti negativnim bridom okidane T bistabile. Zadano je početno stanje brojila: $B_0B_1B_2=100$. Nacrtati valne oblike na izlazima bistabila za prva 4 taktna impulsa.



	B ₂	B ₁	B ₀
0	0	0	0
1	0	0	1
2	0	1	0
3	0	1	1
4	1	0	0
5	1	0	1
6	1	1	0
7	1	1	1
8	0	0	0

dekaški se naveduju

Nacrtati simbol i shemu nepotpunog zbrajala i napisati pripadajuću tablicu stanja.

- Click to add text

A_i	B_i	S_i	C_i
		2^0	2^1
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

binarno zbrajavanje

napravite

Nacrtati prstenasto brojilo izvedeno sa tri D bistabila, te analizirati rad prikazom tablice stanja i dijagramom stanja i početnim stanjem $B_0B_1B_2=100$.

$210 \rightarrow 001$

CLK	Q_0	Q_1	Q_2
0	1	0	0
1	0	1	0
2	0	0	1
3	1	0	0

Prstenasto brojilo-brojilo u užem smislu, samo jedna „1“ cirkulira u registru. Djelitelj frekvencije, dijeli frekvenciju sa „n“-broj bistabila.

Nacrtati shemu 3-bitnog asinkronog binarnog brojila. Koristiti negativnim bridom okidane T bistabile. Zadano je početno stanje brojila: $B_0B_1B_2=010$. Nacrtati valne oblike na izlazima bistabila za prva 4 taktna impulsa.

Ciklus	C_p	B_2	B_1	B_0
0	0	0	0	0
1	1	0	0	1
2	0	0	1	0
3	0	1	0	1
4	1	0	0	0
5	1	0	1	0
6	1	1	0	0
7	1	1	1	0
8	0	0	0	0

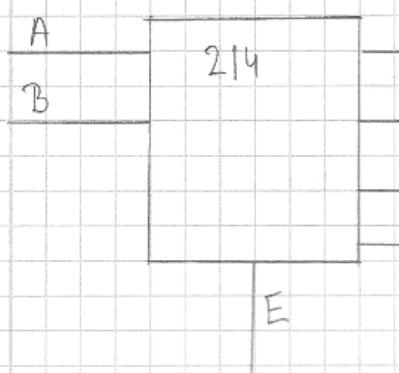
Asinkrono brojilo-bistabili ne mijenjaju stanje sinkrono sa zajedničkom pobudom; sporiji rad.

(01) | (12)
1 | ---
2 | ---
3 | ---
4 | ---

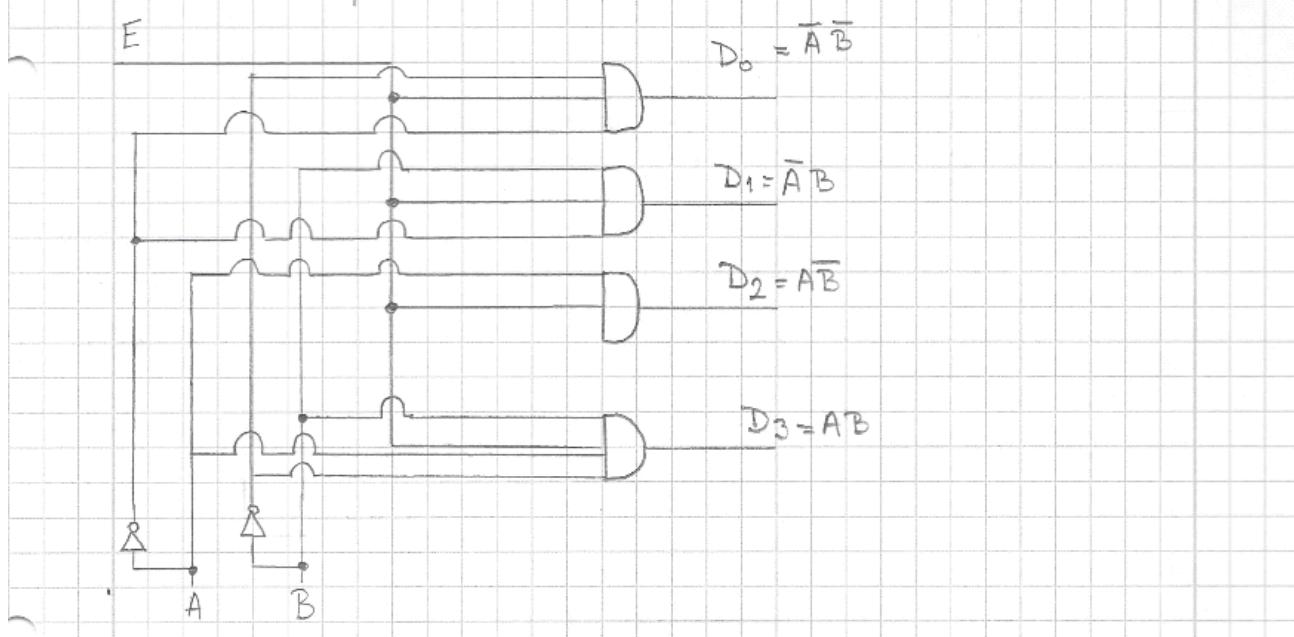
1.7. Logički množivač 2x4 i njegova logička shema

1. NACRTAJ SIMBOL I LOGIČKU SHEMU DEKODERA

2|4, TE NAPISATI TABLICU STANJA.

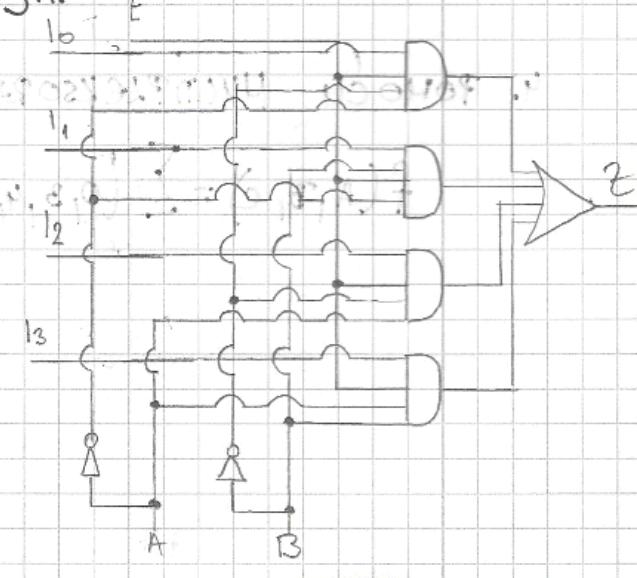


E	A	B	D ₀	D ₁	D ₂	D ₃
			0	x	0	0
			1	0	0	0
			1	0	1	0
			1	1	0	0
			1	1	1	0



2. HACZTAĆ SIMBOL I LOGIČKU SHEMU MULTIPLEXORA 4/1
TE NAPISATI TABLICU STANJA.

	E	A	B	Z
I ₁	0	x	x	0
I ₂	1	0	0	I ₂
I ₃	1	0	1	I ₃
	1	1	0	I ₂
	1	1	1	I ₃



3. Použitím multiplexora 8/1 realizovat logickou funkciu

$$f(A, B, C) = \bar{A}BC + A\bar{C} + C\bar{B}$$

$$f(A, B, C) = \bar{A}BC + ABC + A\bar{B}\bar{C} + A\bar{B}C + \bar{A}\bar{B}C$$

$$\bar{A}BC = 011 = 3, \quad A\bar{B}\bar{C} = 100 = 4, \quad \bar{A}\bar{B}C = 001 = 1$$

$$ABC = 110 = 6 \quad A\bar{B}C = 101 = 5$$

$$f(A, B, C) = \sum(1, 3, 4, 5, 6)$$

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

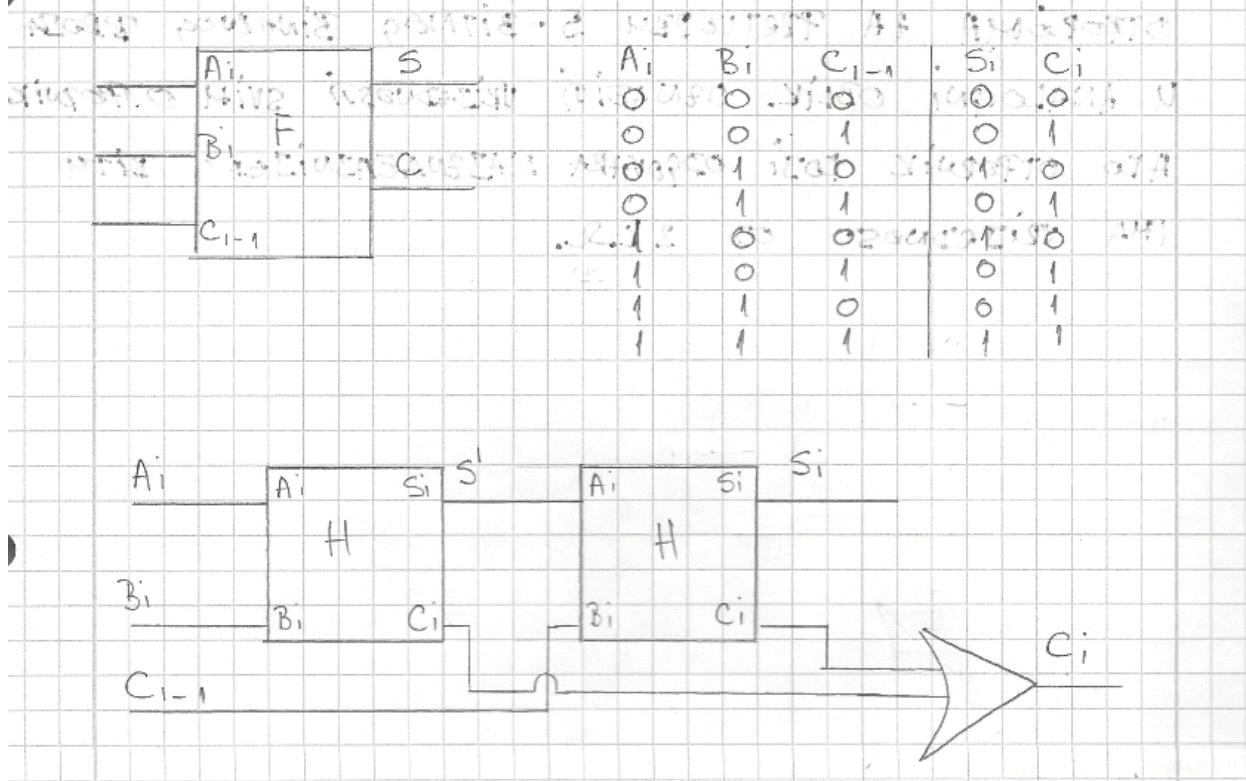
E	16	15	14	13	12	11	10	z
0	1							
1		1						
0			1					
1				1				
1					1			
1						1		
0							1	
1								1

4. Použitím multiplexora 4/1 realizovat logickou funkciu

$$f(A, B, C) = \sum(0, 3, 4, 5, 7)$$

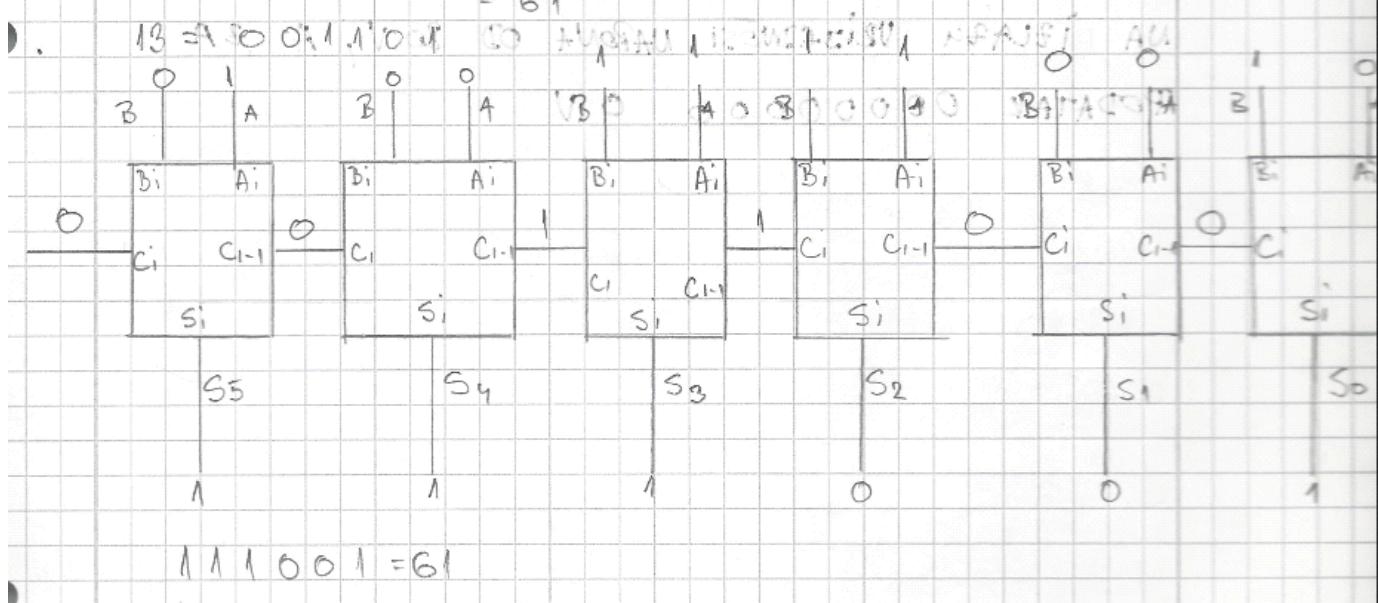
A	B	C	f	
0	0	0	1	$f = \bar{C}, D_0 = f = \bar{C}$
0	0	1	0	
0	1	0	0	$f = C, D_1 = f = C$
0	1	1	1	
1	0	0	1	$f = 1, D_2 = f = 1$
1	0	1	1	
1	1	0	0	
1	1	1	1	$f = C, D_3 = f = C$

5. NACRTATI SHEMU I SIMBOL POTPUNOG ZBRAJACA
(PONOĆU POLUZBRAJACA) I NAPISATI TABLICU STANJA.



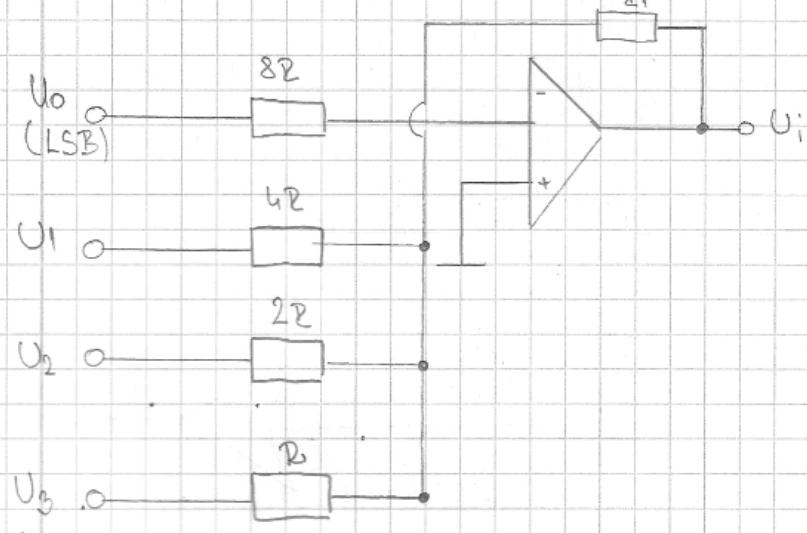
6. NACRTATI SHEMU PARALELNOG ZBRAJALA, TE PRIKAZI
ZBRAJANJE DVA BROJA NA PRIMJERU. ZBROJA BROJ. 23 i 14.

$$23 + 14 = 1011010_2 + 1100_2 = 1111010_2 = 61$$



I. 8

1. NACRTATI SHEMU DA PRETVORNICA SE TETINSKIM
OTPORIMA ZA PRETVORBU 5-BITNOG BINARNOG BROJA
U ANALOGNI OBLIK. OZNACIJ VRIJEDNOSTI SVIH OTPORA
AKO OTPORNIK KOJI ODGOVARA NAJZNAČAJNIJEM BITU
IMA VRIJEDNOST OD $2 k\Omega$.



2. Izračunat iznos maks. izlaznog napona da

pretvornika, ako se za podatak 11001000 dobije
na izlazu vrijednost napona od 20 V, a za
podatak 00000000 0 V

$$11001000 = 200$$

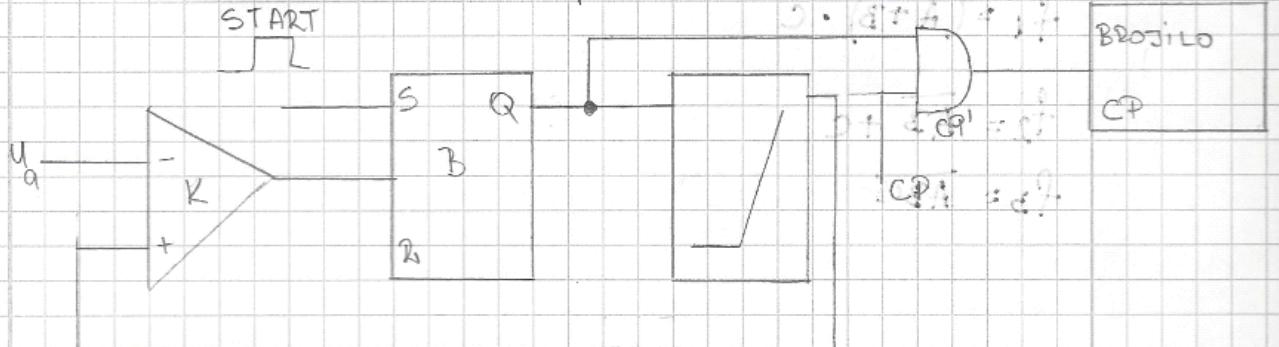
$$20 \text{ V} : 200 = 0,1 \text{ V} - \text{rezolucija}$$

$$1.1111111 = 255$$

$$255 \cdot 0,1 = 25,5 \text{ V}$$

3. NACRTATI SHEMU WILKISONOVOG AD. PRETVORNICKA

i NA VREMENSKOM DIJAGRAMU ANALIZIRATI RAD.



DIJAGRAM SOLO :)

4. MAX. VRIJEME TRAJANJA AD PRETVORBE U
8-BITNOM WILKISONOVOM PRETVORNICKU IZNOSI 100 μs.
IZRACUNATI IZNOS FREKVENTIJE PRAVOLINIH IMPULSA.

$$t_p = 100 \mu s$$

$$t_p = T_{izl} (2^8 - 1)$$

$$t_p = T_{izl} (2^8 - 1)$$

$$100 \mu s = T \cdot 255$$

$$T = 100 \cdot 10^{-6} / 255 = 0,4 \mu s.$$

I.9 NACRTAT MATEŘICNÍ PRÍKAZ

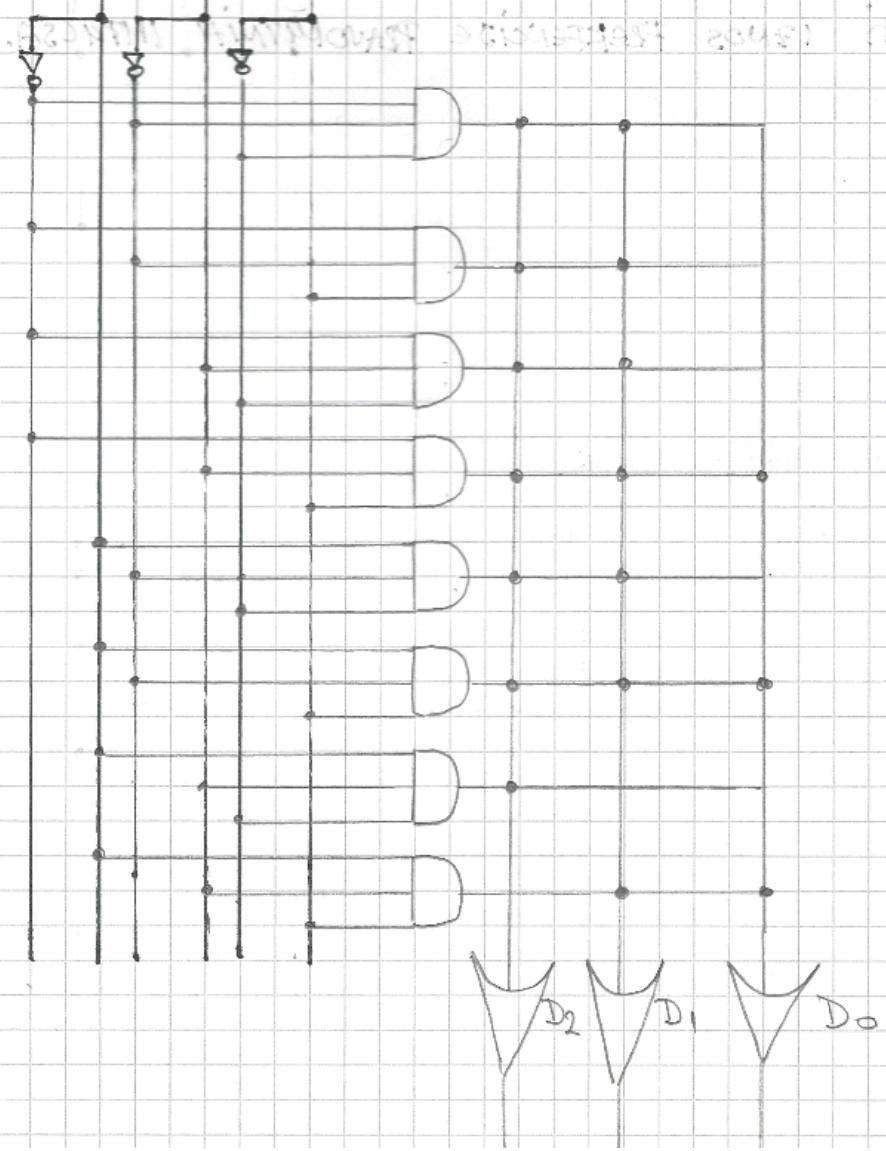
$$f_1 = (A+B) \cdot C$$

$$f_2 = \overline{AB} + C$$

$$f_3 = \overline{ABC}$$

$$\begin{array}{ccc|ccc} A & B & C & f_3 & f_2 & f_1 \\ \hline 0 & 0 & 0 & 1 & 1 & 0 \\ 0 & 0 & 1 & 1 & 1 & 0 \\ 0 & 1 & 0 & 1 & 1 & 0 \\ 0 & 1 & 1 & 1 & 1 & 1 \\ 1 & 0 & 0 & 1 & 1 & 0 \\ 1 & 0 & 1 & 1 & 1 & 1 \\ 1 & 1 & 0 & 1 & 0 & 0 \\ 1 & 1 & 1 & 0 & 0 & 0 \end{array}$$

1. Předložit a vytvořit funkci

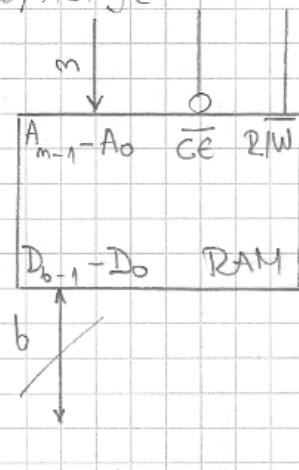
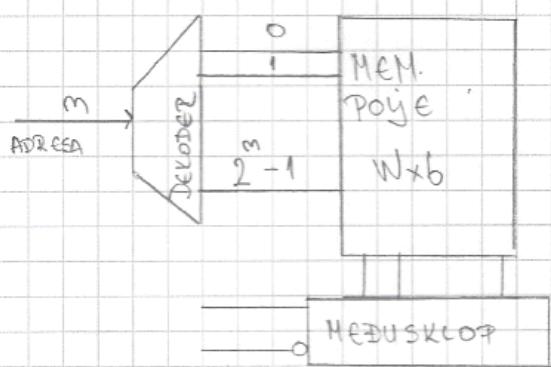


3. NABROJATI ORGANIZACIJE MEM. POŽA

- DEKODER

- MEMOTISKO POŽE

- NEĐUŠKLOP : POJEDALA ZA CITANJE/PISANJE



15

Konzultacija, 5.2.2018.

Senjski upis (D tristabili)

$$B_0 = B_1 = B_2 = \textcircled{011}$$

S_u	C_p	D_o	B_1	B_2
-	0	0	0	0
1	1	1	0	0
1	2	1	1	0
0	3	0	1	1

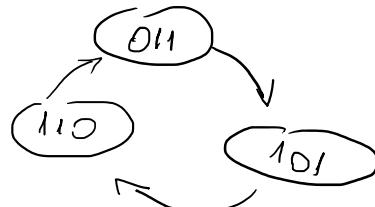
Na senjski ulaz (su)
ulazi broj zadata
u zadatku.

Prstenasto

$$B_1 B_2 = 11$$

C_P	Q_0	Q_1	Q_2
-	0	1	1
1	1	0	1
2	1	1	0
3	0	1	1
4	1	0	1
5	1	0	1

$$B_0 B_1 B_2$$



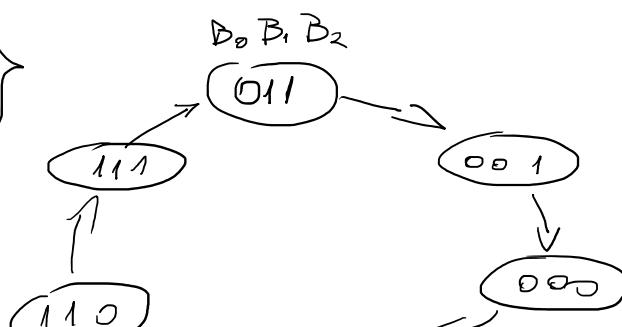
broji 3 stanja

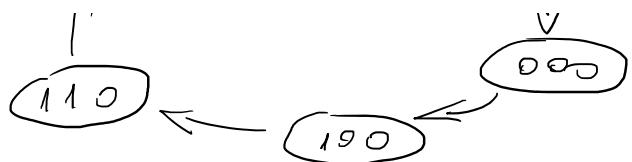
Johnsonovo

$$B_1 B_2 = 11$$

C_P	B_0	B_1	B_2
-	0	1	1
1	0	0	1
2	0	0	0
3	1	0	0
4	1	1	0
5	1	1	1
6	0	1	1

ako nema posljednje stanje
pisemo 0 0 0





3bitno binarno asinkrono, CP ↓

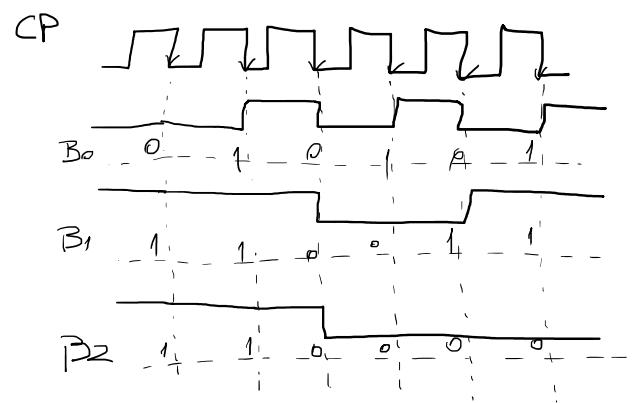
Clr	CP	B ₂	B ₁	B ₀	Dek
0	1	0	0	0	0
1	1	0	0	1	1
2	0	1	0	0	2
3	0	1	1	0	3
4	1	0	0	0	4
5	1	0	1	0	5
6	1	1	0	0	6
7	1	1	1	0	7
8	0	0	0	0	0

→ brojilo broji prema napred
(okidanje negativnim brojama)
↔ CP u shemi
ime bruzic !

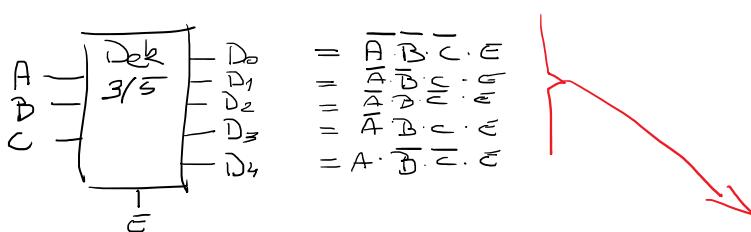
andza broz tablicu stanja i vremenski diagram

$$B_0 = B_1 = B_2 = \overline{D} \cdot \overline{I} \quad | \text{ (shema binarney asinkronog)}$$

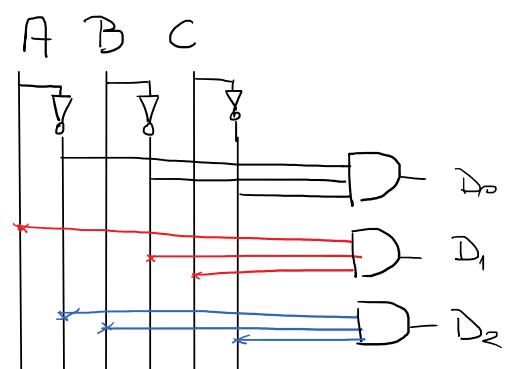
Clr	CP	B ₂	B ₁	B ₀	(Dek)
0	1	1	1	0	6
1	1	1	1	1	7
2	0	0	0	0	0
3	0	0	1	0	1
4	0	1	0	0	2
5	0	1	1	0	3



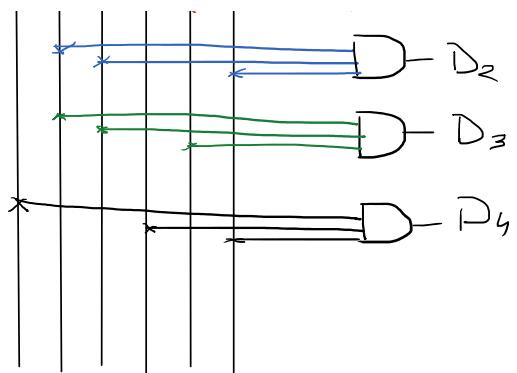
Shema dekoder a = 5 izlaza



ABC	D ₀	D ₁	D ₂	D ₃	D ₄
1 0 0	0	0	0	0	0

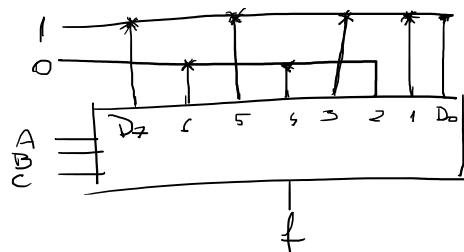


$A \setminus BC$	D_0	D_1	D_2	D_3	D_4
0 0 0	1	0	0	0	0
0 0 1	0	1	0	0	0
0 1 0	0	0	1	0	0
0 1 1	0	0	0	1	0
1 0 0	0	0	0	0	1

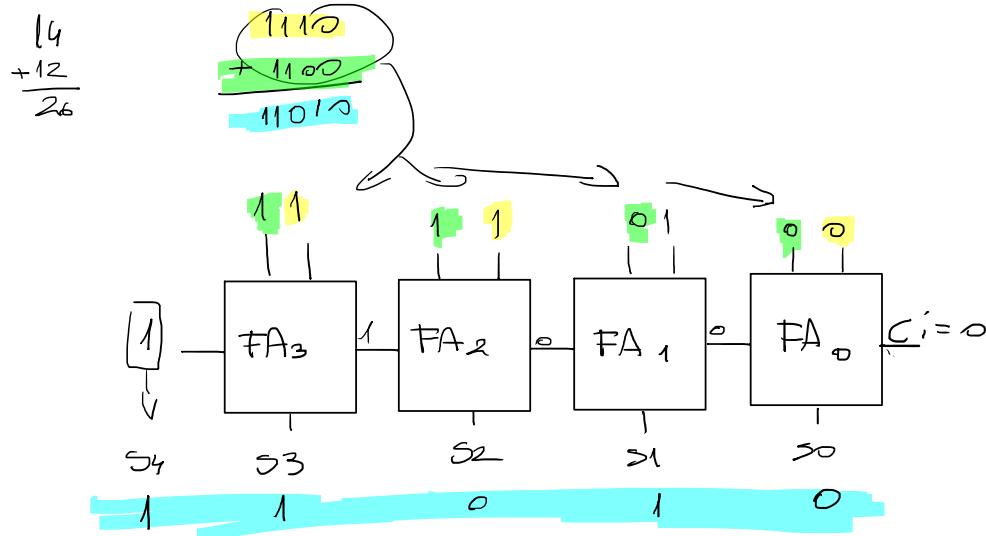


$$f(A \setminus BC) = \sum(0, 1, 3, 5)$$

a) 8/1



zbroji 14 i 12



Ključnica

$$B_0 = B_1 = B_2 = \overbrace{101}^{<}$$

1)

S_u	B_0	B_1	B_2	CP
1	0	0	0	0
1	1	0	0	1
0	0	1	0	2
1	1	0	1	3

$$\left| \begin{array}{c|ccc|c} & 1 & 0 & 1 & 2 \\ 0 & 0 & 1 & 0 & 3 \\ 1 & 1 & 0 & 1 & \end{array} \right|$$

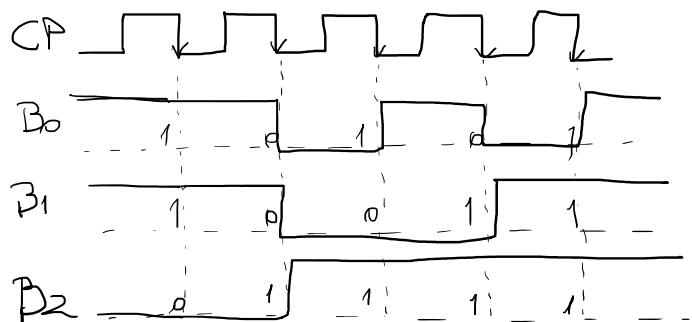
2)

CP	B ₀	B ₁	B ₂	
0	1	0	0	
1	0	1	0	
2	0	0	1	
3	1	0	0	

10 1 2 4 8 16 ...

3)

CP	B ₀	B ₁	B ₂	
	1	1	0	$\rightarrow 3_{(10)}$
	0	0	1	$\rightarrow 4_{(10)}$
	1	0	1	$\rightarrow 5_{(10)}$
	0	1	1	:
	1	1	1	



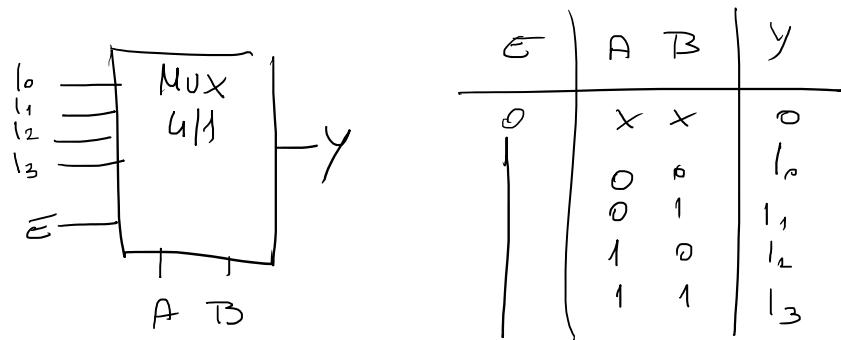
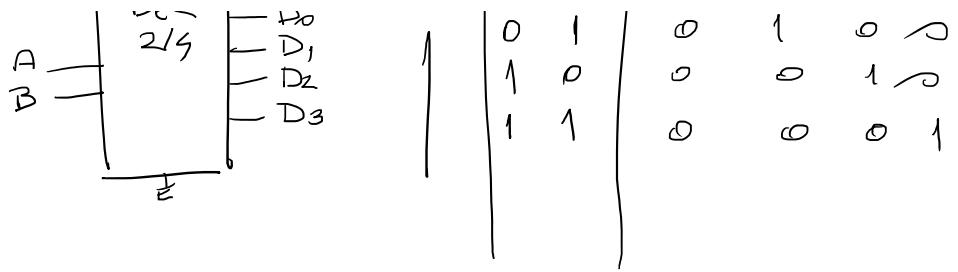
Atributnou, tablica brojila

clr	CP	B ₂	B ₁	B ₀	Dek
0	0	0	0	0	0
1	1	0	0	1	
2	0	1	0	2	
3	0	1	1	3	
4	1	0	0	4	
5	1	0	1	5	
6	1	1	0	6	
7	1	1	1	7	
0	0	0	0	0	

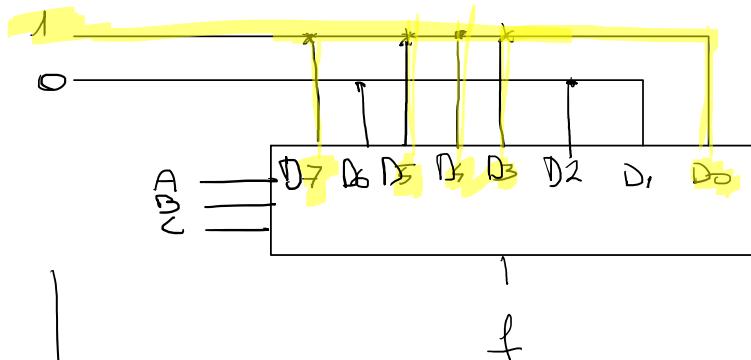
Dek 2/4



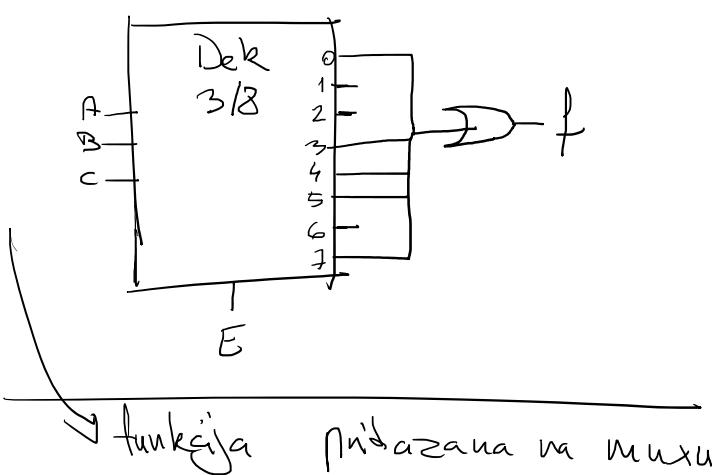
C	A	B	D ₀	D ₁	D ₂	D ₃
0	0	0	1	0	0	0
1	0	1	0	1	0	0



$$f(ABC) = \sum(0, 3, 4, 5, 7)$$

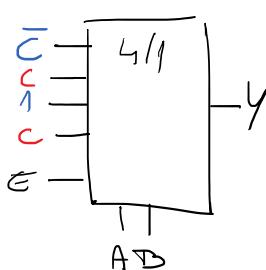


funkcija prikazana na dekodéru



funkcija prikazana na muxu

→ funkcija podrazvana na muxu

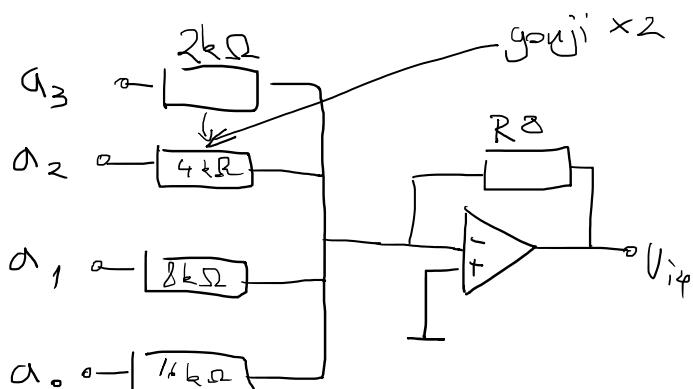


A	B	C	f	Y
0	0	0	1	0
0	0	1	0	0
0	1	0	1	1
0	1	1	1	1
1	0	0	1	1
1	0	1	1	1
1	1	0	0	0
1	1	1	1	1

- gledamo C i f

- ugovoretjujemo da C sa oba f

- ako su meotusobno inverzivni
nisi se $\Sigma = \dots$



$$U_{max} = \frac{U_a}{B(10)} = \frac{10}{200} = 0.05V * 255 = 12.75$$

$$f_1 = \overline{A \cdot B} + C$$

$$f_2 = \overline{A + B + C}$$

$$f_3 = A \cdot B \cdot C$$

A	B	C	f ₁	f ₂	f ₃
0	0	0	1	1	0
0	0	1	1	0	0
0	1	0	1	0	0
0	1	1	1	0	0
1	0	0	1	0	0
1	0	1	1	0	0
1	1	0	0	0	0
1	1	1	1	0	1

Mathematische Probleme

