

Meno študenta :...**byKiVi** :). št. skupina:.....

ZADANIE č.3

LOGICKÉ OBVODY

Algoritmus 19:

$$A1 \rightarrow \Delta t1 \rightarrow M1 \rightarrow K1 \rightarrow M2 \rightarrow \Delta t2 \rightarrow M3 \rightarrow K2 \rightarrow \overline{M1} \wedge \overline{M2} \wedge \overline{M3}$$

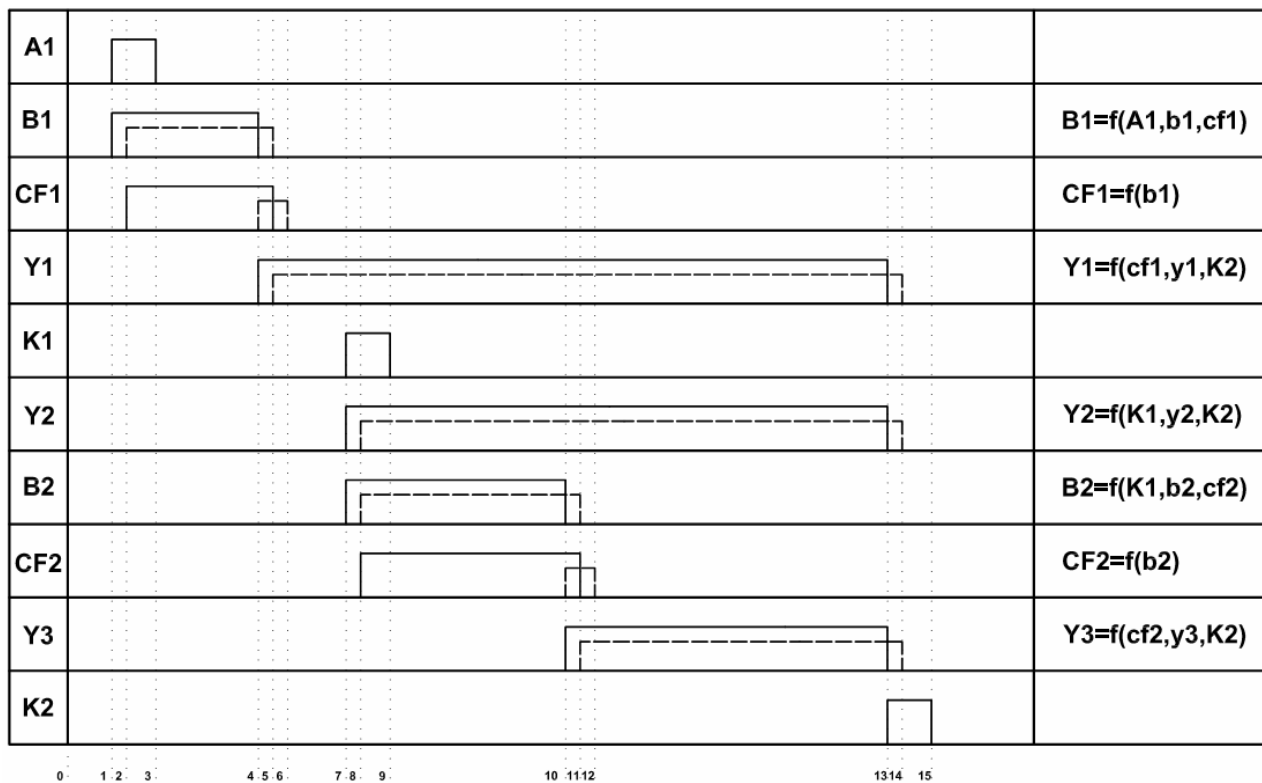
Úloha : Zadaný algoritmus spracujte podľa nasledovných krokov:

1. Zadaný algoritmus nakreslite vo forme časových diagramov.
2. Časové diagramy prepíšte do postupových alebo kombinačných tabuliek.
3. Určite minimálne tvary elementárnych logických funkcií pomocou Karnaughovej mapy.
4. Podľa výsledkov zostavte:
 - kontaktné riešenie logického obvodu
 - bezkontaktné riešenie logického obvodu

Vypracovanie

1. Časový diagram

$$A1 \rightarrow \Delta t1 \rightarrow M1 \rightarrow K1 \rightarrow M2 \rightarrow \Delta t2 \rightarrow M3 \rightarrow K2 \rightarrow \overline{M1} \wedge \overline{M2} \wedge \overline{M3}$$



Obr. 1: Časový diagram

2. Postupová tabuľka

Tab. 1: Postupová tabuľka

t	A1	b1	cf1	y1	K1	y2	b2	cf2	y3	K2	Y1	Y2	Y3	B1	B2	CF1	CF2
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
2	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
3	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0
5	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0
6	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0
7	0	0	0	1	1	0	0	0	0	0	1	1	0	0	1	0	0
8	0	0	0	1	1	1	1	0	0	0	1	1	0	0	1	0	1
9	0	0	0	1	0	1	1	0	0	0	1	1	0	0	1	0	1
10	0	0	0	1	0	1	1	1	0	0	1	1	1	0	0	0	1
11	0	0	0	1	0	1	0	1	1	0	1	1	1	0	0	0	0
12	0	0	0	1	0	1	0	0	1	0	1	1	1	0	0	0	0
13	0	0	0	1	0	1	0	0	1	1	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

3. Karnaughove mapy – určenie minimálnych tvarov log. funkcií

		cf1			
		b1			
A1	B1	0	1	0	0
		1	1	X	X

$$B1 = A1 + b1 \cdot \overline{cf1}$$

		K2			
		y1			
cf1	Y1	0	1	0	0
		1	1	X	X

$$Y1 = cf1 + y1 \cdot \overline{K2}$$

		K2			
		K1			
y2	Y2	0	1	X	0
		1	1	X	0

$$Y2 = K1 + \overline{K2} \cdot y2$$

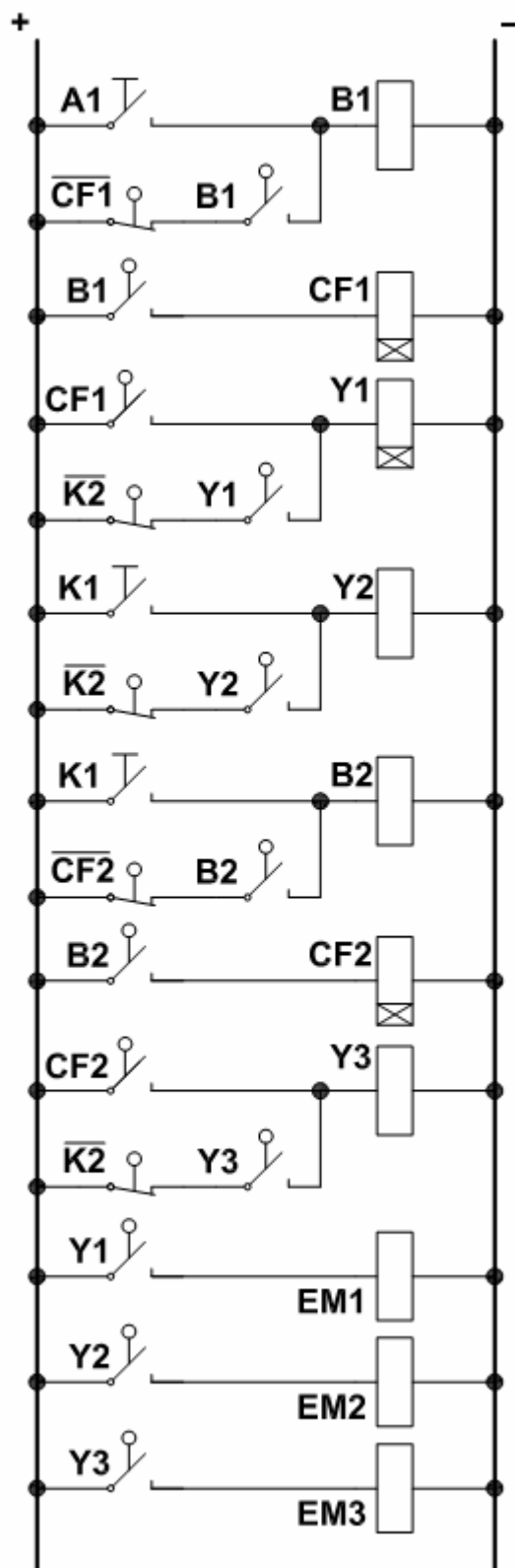
		cf2			
		b2			
K1	B2	0	1	0	0
		1	1	X	X

$$B2 = K1 + b2 \cdot \overline{cf2}$$

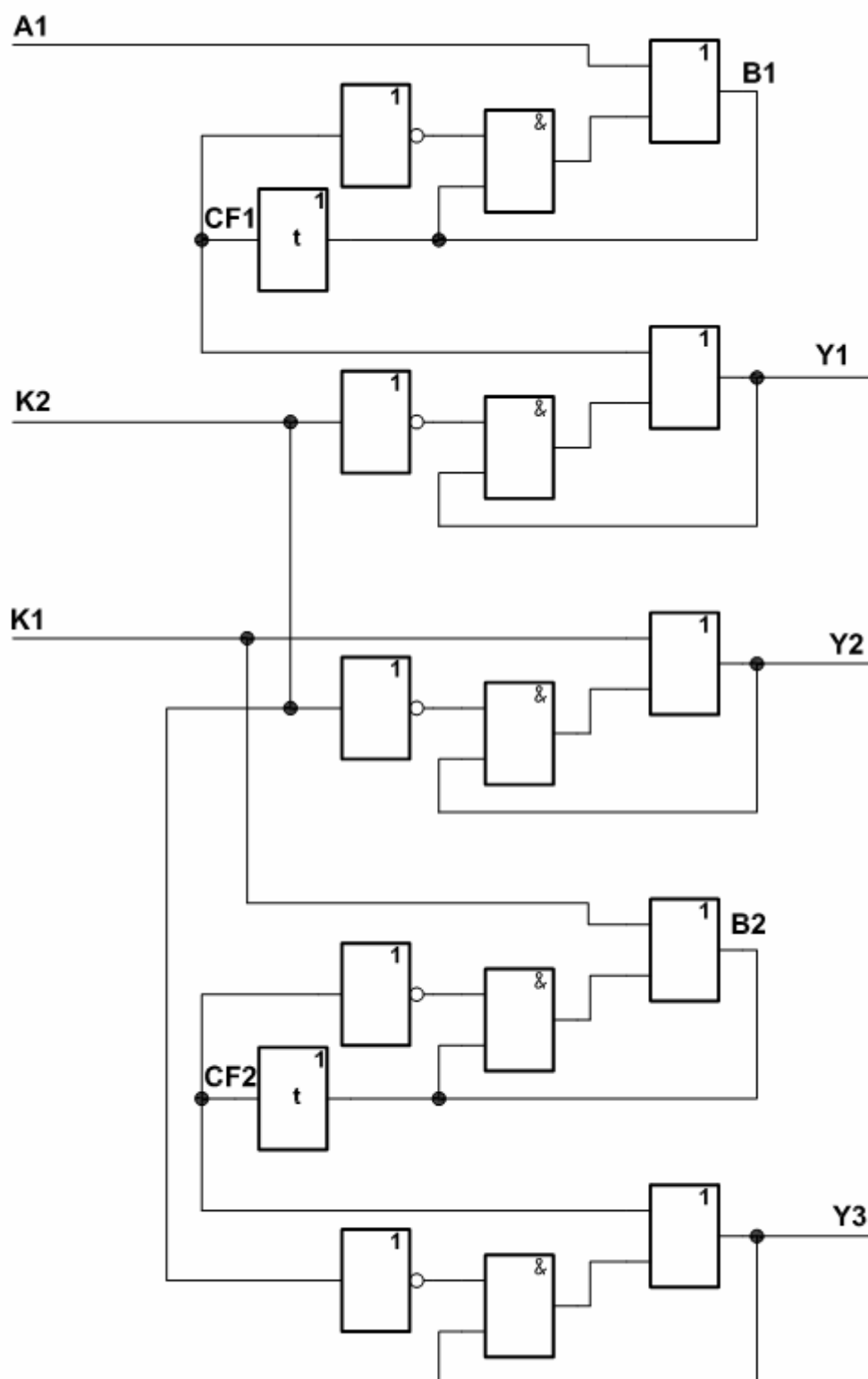
		K2			
		y3			
cf2	Y3	0	1	0	0
		1	1	X	X

$$Y3 = cf2 + y3 \cdot \overline{K2}$$

4. Kontaktné riešenie logického obvodu

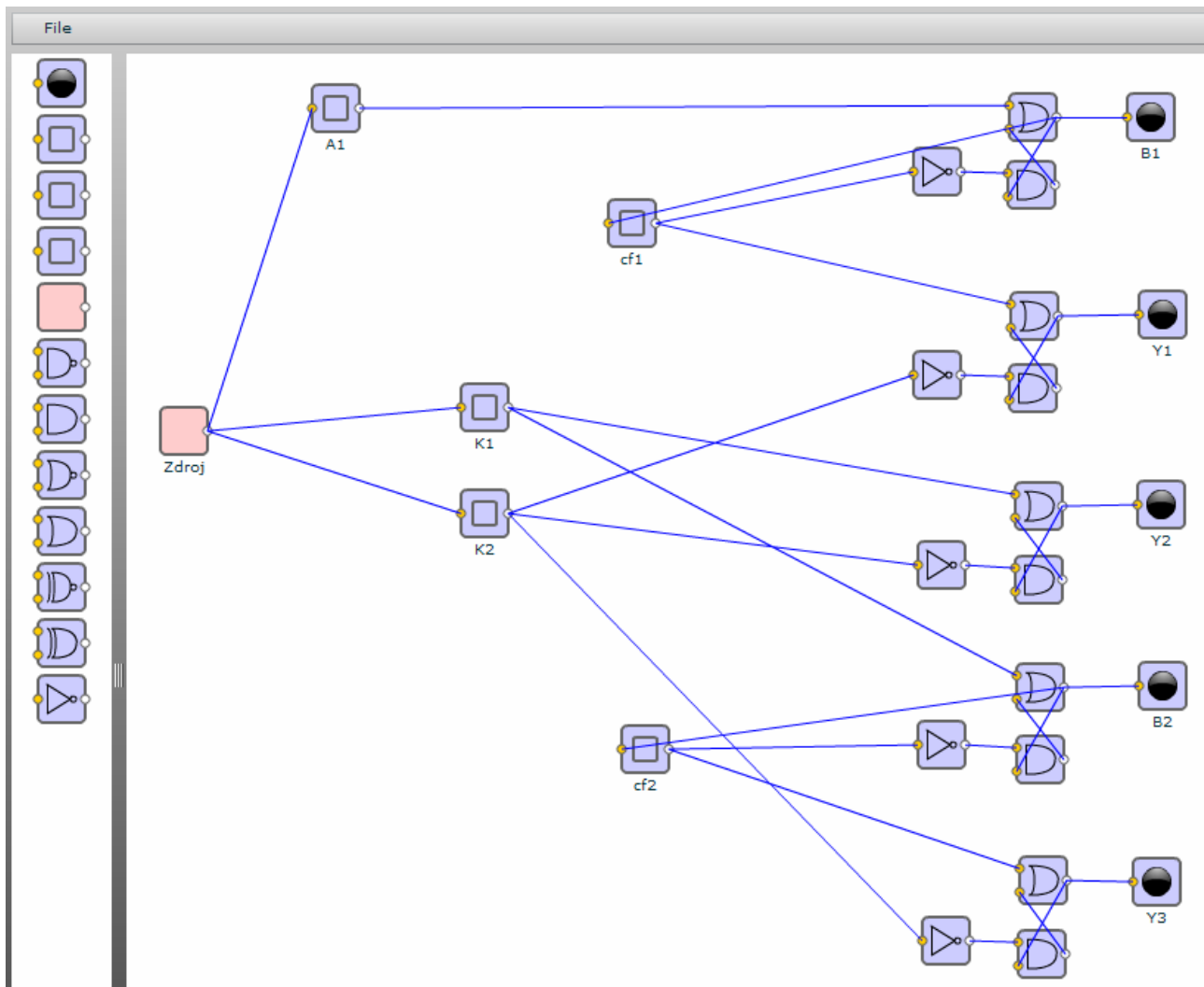


5. Bezkontaktné riešenie logického obvodu



Simulácia

Dostupné na internete: <http://www.d-project.com/simcir/flex/index.html> (Adobe Flash)



Zdrojové dáta:

Skopírujú sa cez *File -> Backup* **namiesto** dát tam obsiahnutých, následne sa klikne na *Restore*.

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