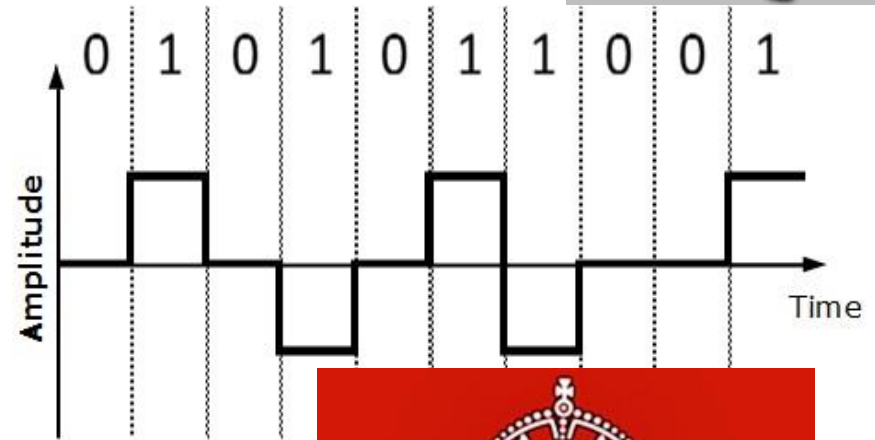
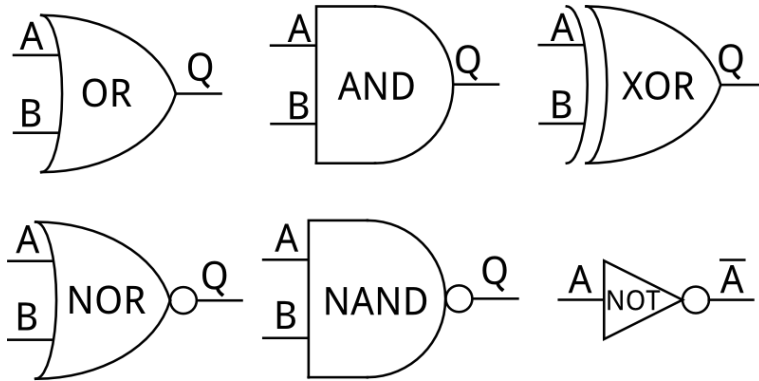


Proiectare Logica

Digital Logic Design

cnic.ro




**KEEP
CALM
AND
LOVE
BOOLEAN
ALGEBRA**

Diagrame V-K

- 1. Functia f cu patru variabile are mintermenii (11,5,7,2,13,0,15,14,10,6,3,1). Minimizati aceasta functie folosind diagramele Veitch.
- 2. Functia f cu patru variabile are maxtermenii (9,2,15,3,13,8,10,11,14,4,0,12). Minimizati aceasta functie folosind diagramele Veitch.

Diagrame V-K

- 3. Functia f cu patru variabile are mintermenii (12,3,0,10,15,14,8,4,7,2,9,11). Minimizati aceasta functie folosind diagramele Veitch. (4 solutii)
- 4. Functia f cu patru variabile are maxtermenii (11,2,13,3,12,4,10,14,9,0,8,6). Minimizati aceasta functie folosind diagramele Veitch.

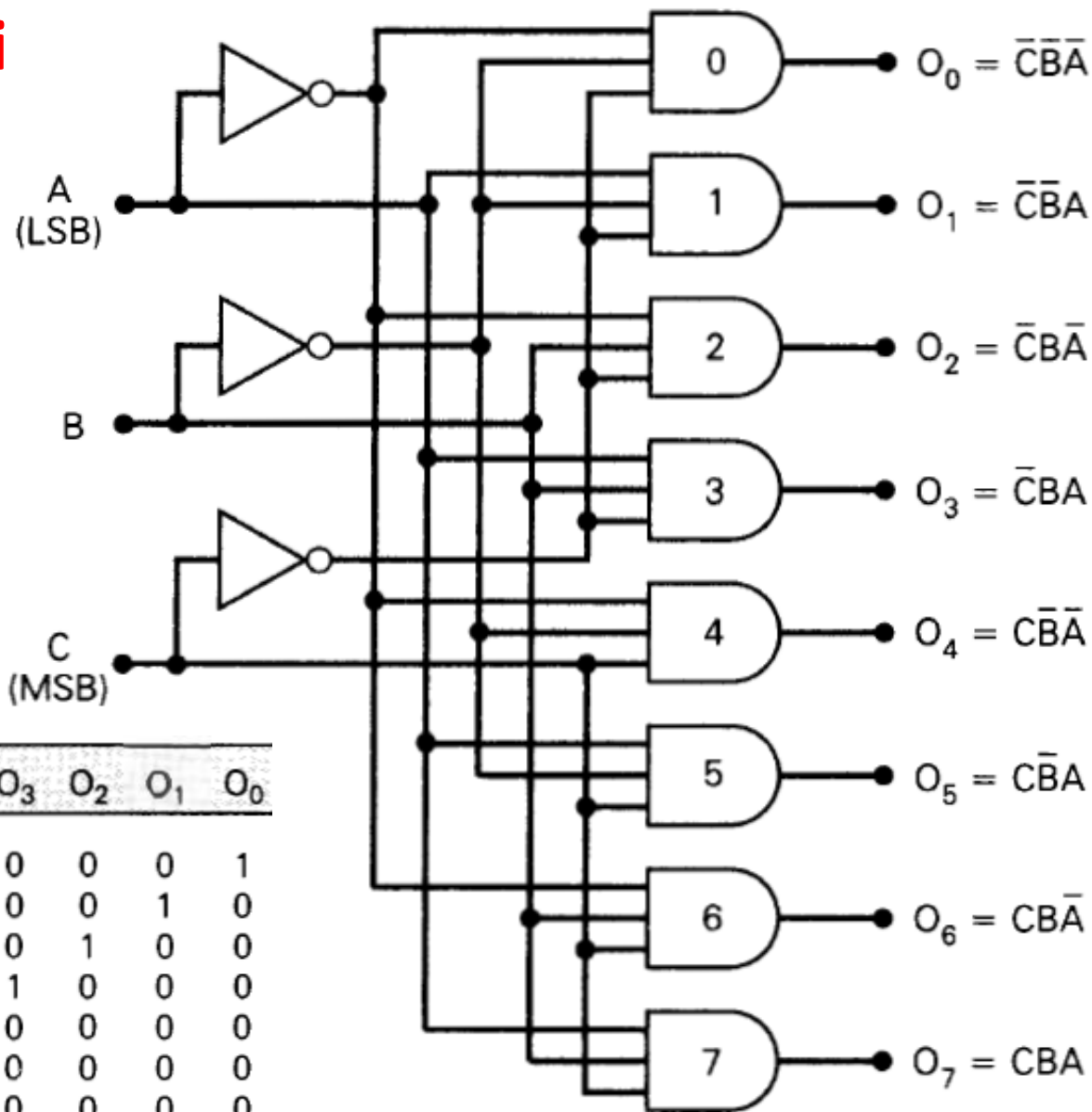
Diagrame V-K

- 5. Functia f cu patru variabile are mintermenii (2,9,15,8,0,1,12,11,5,13,14,3). Minimizati aceasta functie folosind diagramele Veitch. (4 solutii)
- 6. Functia f cu patru variabile are maxtermenii (12,5,1,13,9,10,14,3,15,7,2,6). Minimizati aceasta functie folosind diagramele Veitch. (2 solutii)

Decodificatorul 3-8

Simulati si verificati
in wronex!

Are **3** intrari si
 $2^3=8$ iesiri.

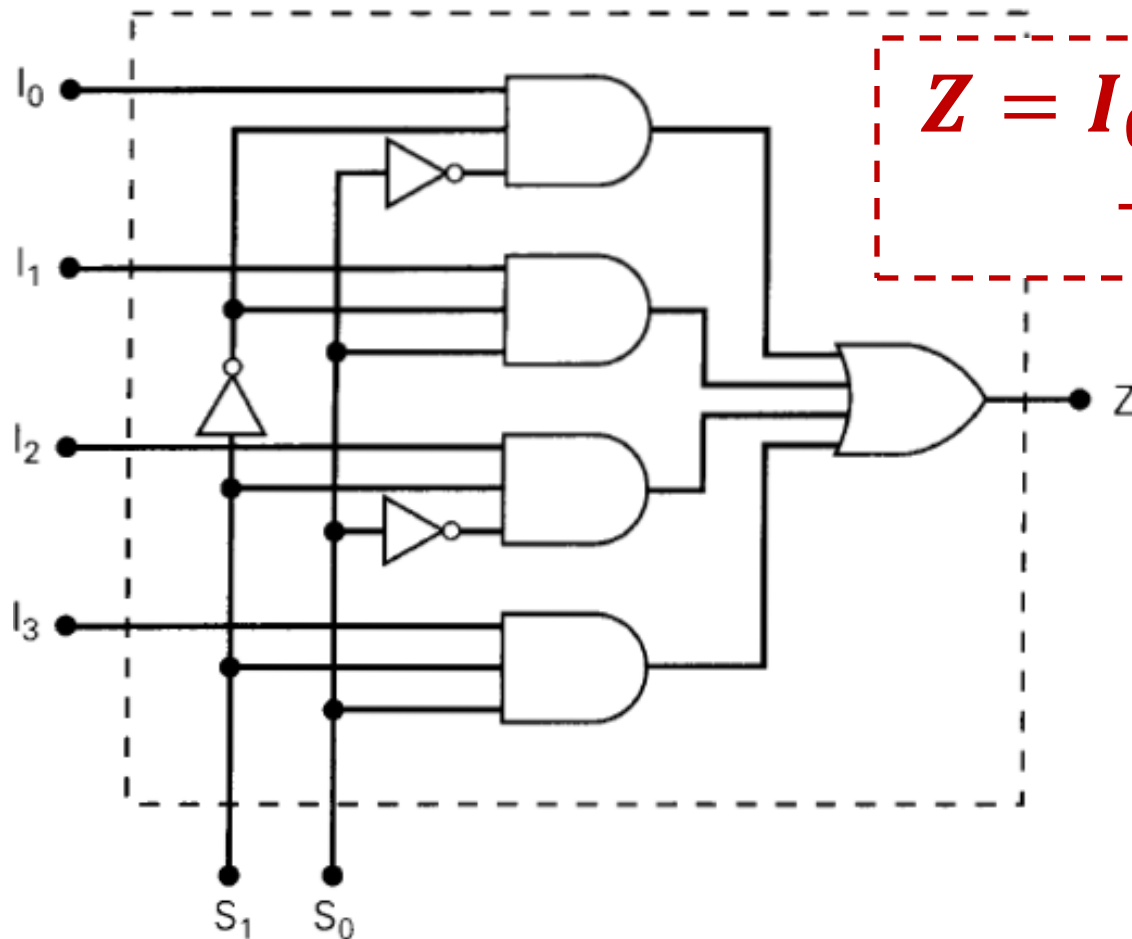


C	B	A	O_7	O_6	O_5	O_4	O_3	O_2	O_1	O_0
0	0	0	0	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	0	1	0
0	1	0	0	0	0	0	0	1	0	0
0	1	1	0	0	0	0	1	0	0	0
1	0	0	0	0	0	1	0	0	0	0
1	0	1	0	0	1	0	0	0	0	0
1	1	0	0	1	0	0	0	0	0	0
1	1	1	1	0	0	0	0	0	0	0

MUX cu patru intrari

• Simulati si verificati in wronex!

• Formula de functionare este:

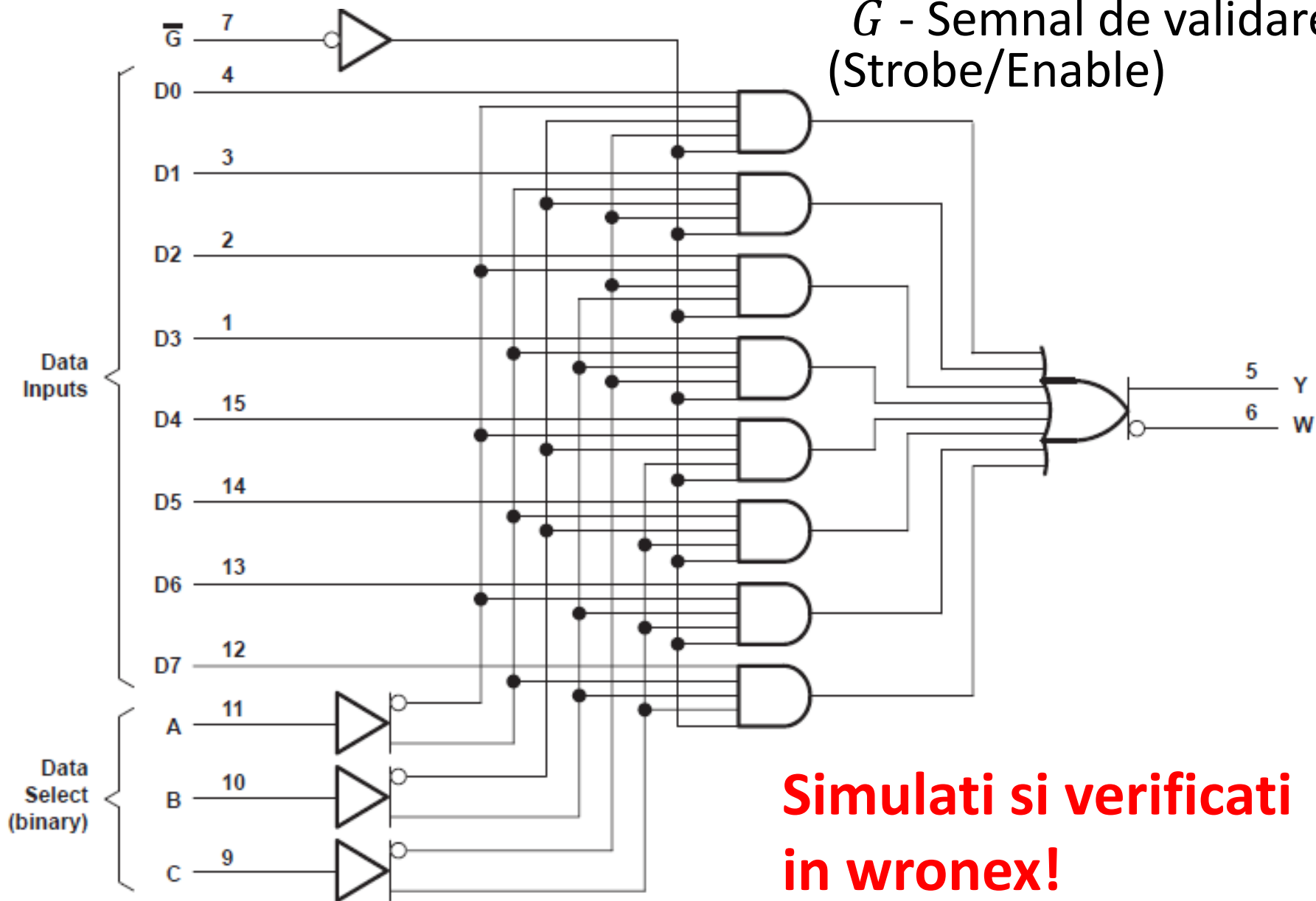


$$Z = I_0 \overline{S_0} \overline{S_1} + I_1 \overline{S_0} S_1 + I_2 S_0 \overline{S_1} + I_3 S_0 S_1$$

S_0	S_1	iesire
0	0	$Z = I_0$
0	1	$Z = I_1$
1	0	$Z = I_2$
1	1	$Z = I_3$

MUX cu opt intrari - 74ALS151

$\bar{G}$ - Semnal de validare
(Strobe/Enable)

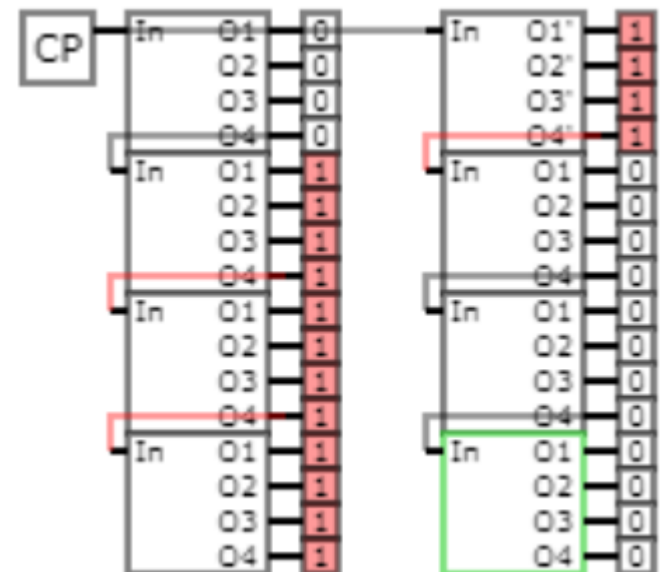
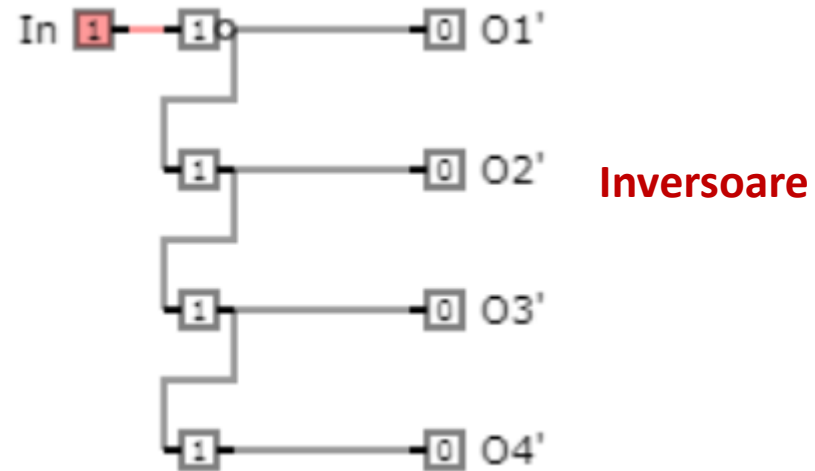
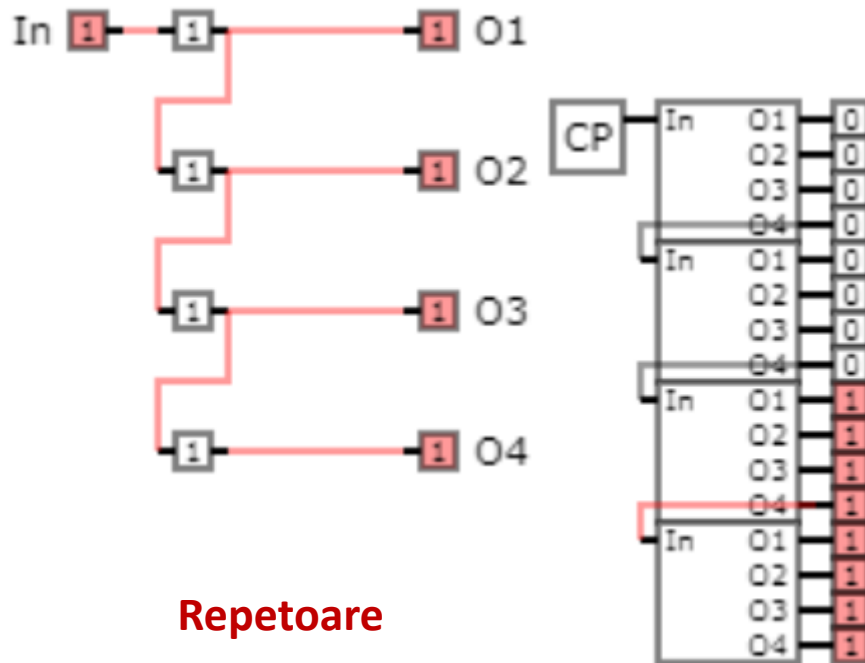


**Simulati si verificati
in wronex!**

Exercitiul 1

Implementati, incapsulati si testati in wronex:

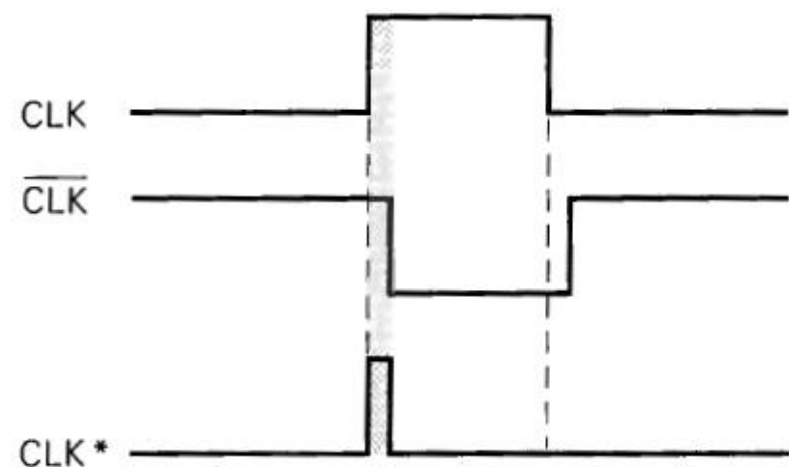
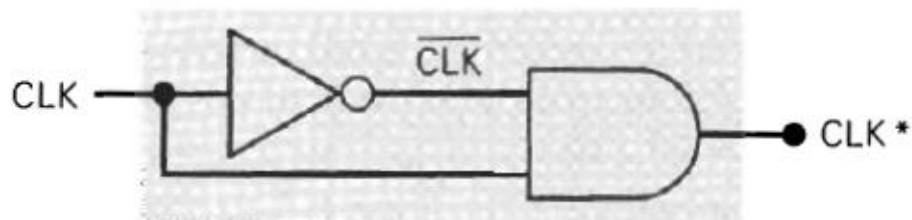
- Liniile de intarziere
- Incercati si alte efecte!



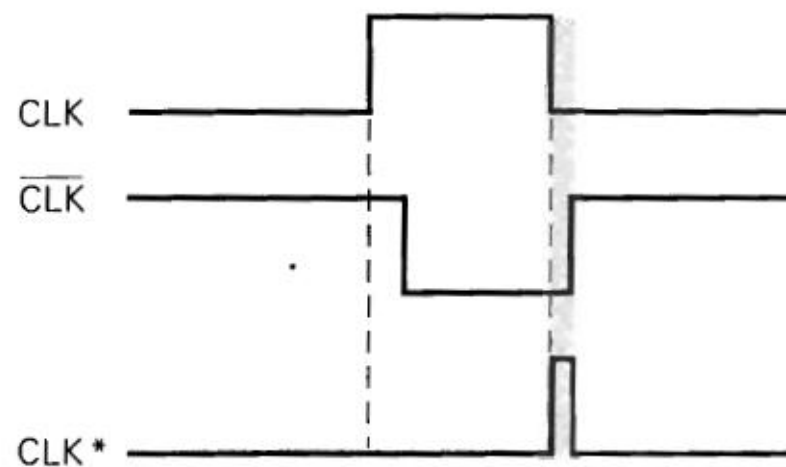
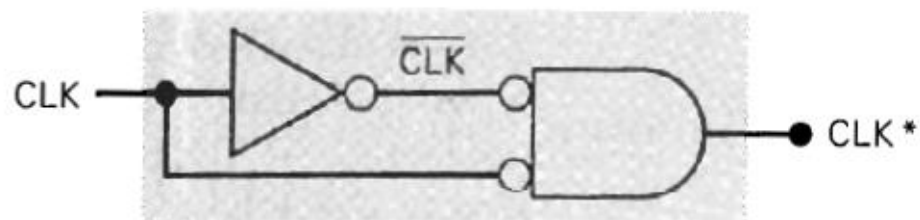
Exercitiul 2

Implementati, incapsulati si testati in wronex:

- Folosind diferitele liniiile de intarziere de la ex 1 implementati detectoarele de front



Detector de front pozitiv



Detector de front negativ

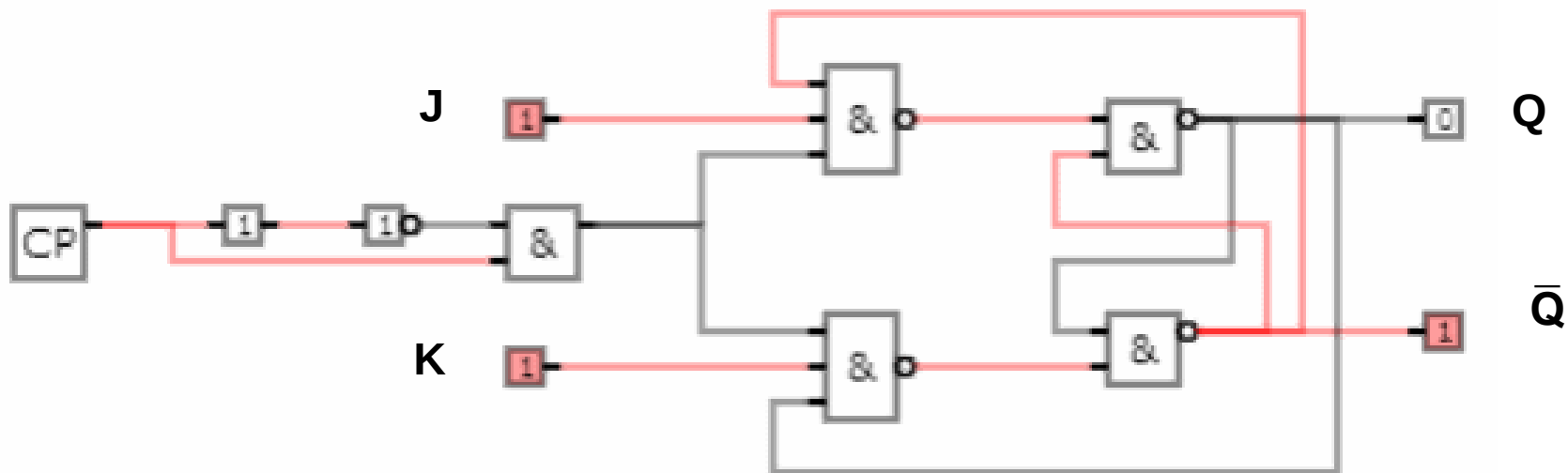
Exercitiul 3

- Implementati in wronex un MUX de 8-1 folosind MUX-uri de 4-1 si alte circuite necesare

Exercitiul 4

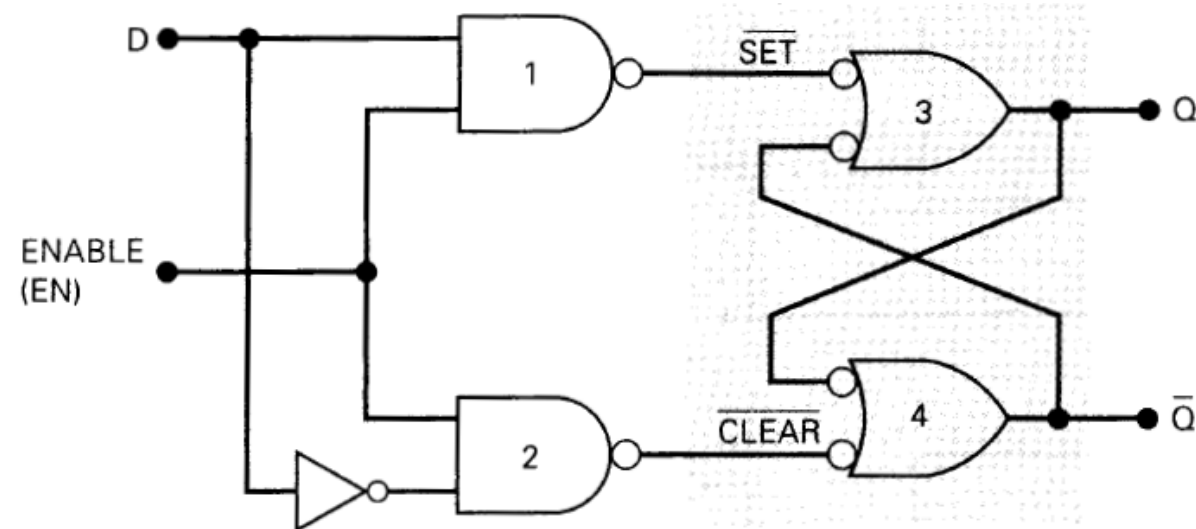
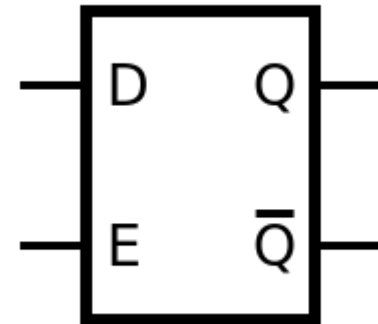
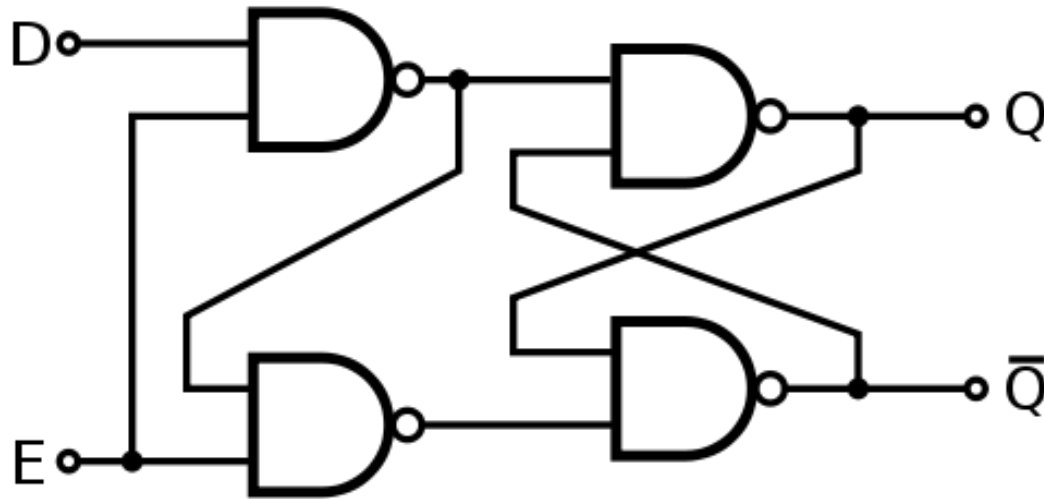
Implementati si incapsulati in wronex:

- Bistabilul de tip JK
- Incercati sa intelegeti de ce in anumite situatii acest circuit oscileaza folosind NAN-uri urmate de linii de intarziere



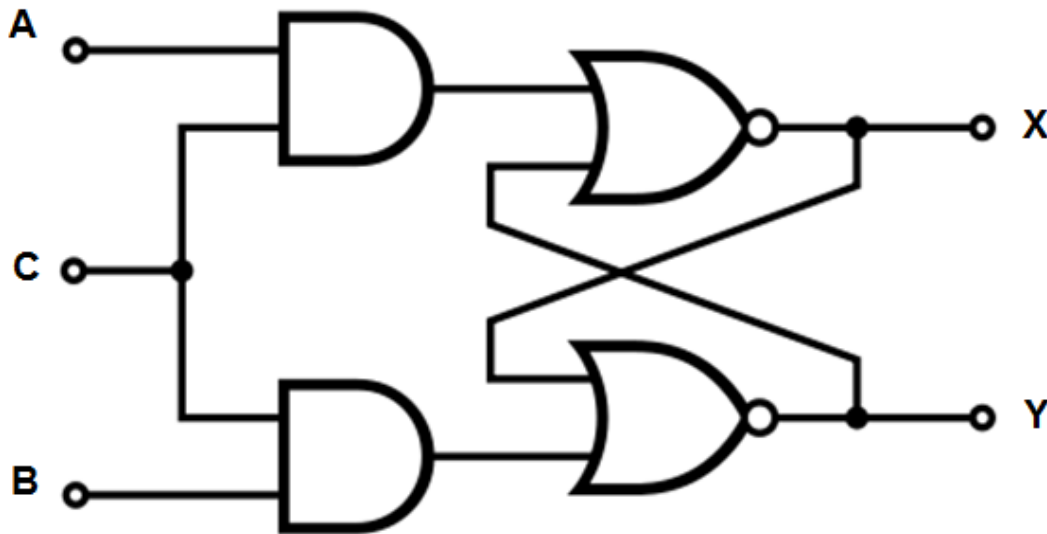
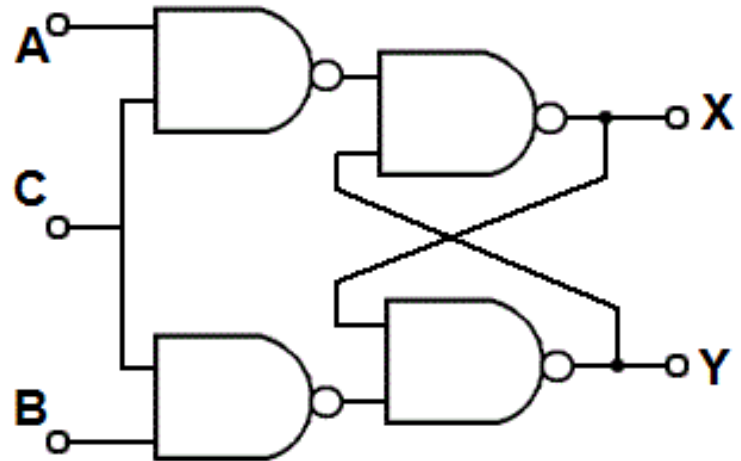
Exercitiul 5

Comparati functionarea celor 2 LATCH-uri folosind linii de intarziere



Implementati in wronex

- Scrieti tabela de adevar.
- Scrieti functiile analitice ce descriu functionarea circuitelor.



Implementati in wronex

- Scrieti tabela de adevar
- Scrieti functiile analitice ce descriu functionarea

