Lucrarea de laborator nr. 3

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Minimizarea funcţiilor logice şi elaborarea schemei electrice principiale

# Scopul lucrării:

1. Obţinerea deprinderilor de minimizare a funcţiilor logice.
2. Obţinerea deprinderilor de construire a schemelor electrice principiale.

# Experimentul nr. 1. Proiectarea schemei electrice numerice principiale

f(a,b,c,d,e,f) = ∑(7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 22, 23, 24, 25, 26, 27,

28, 29, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 48, 49, 50, 51, 52, 53, 54)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *def/abc* | *000* | *001* | *011* | *010* | *110* | *111* | | *101* | *100* | *abc/def* |
| *000* |  | 1 | 1 | 1 | 1 |  | | 1 | 1 | *000* |
| *001* |  | 1 | 1 | 1 | 1 |  | | 1 | 1 | *001* |
| *011* |  | 1 | 1 | 1 | 1 |  | | 1 | 1 | *011* |
| *010* |  | 1 | 1 | 1 | 1 |  | | 1 | 1 | *010* |
| *110* |  | 1 |  | 1 | 1 |  | | 1 | 1 | *110* |
| *111* | 1 | 1 |  | 1 |  |  | |  | 1 | *111* |
| *101* |  | 1 | 1 | 1 | 1 |  | | 1 | 1 | *101* |
| *100* |  | 1 | 1 |  | 1 |  | | 1 | 1 | *100* |
| *def/abc* | *000* | *001* | *011* | *010* | *110* | *111* | | *101* | *100* | *abc/def* |
| k0 = a+b+c+d  k1 = a+b+c++f  k3 = a+b+c+e  k4 = a++++  k5 = a++c++e+f | | | | | | | k6 = ++  k7 = ++++  k8 = ++c+++ | | | | |

f(a,b,c,d,e,f) = (a+b+c+d) × (a+b+c++f) × (a+b+c+e) × (a++++× (a++c++e+f )× ++) × ++++ × ++c+++

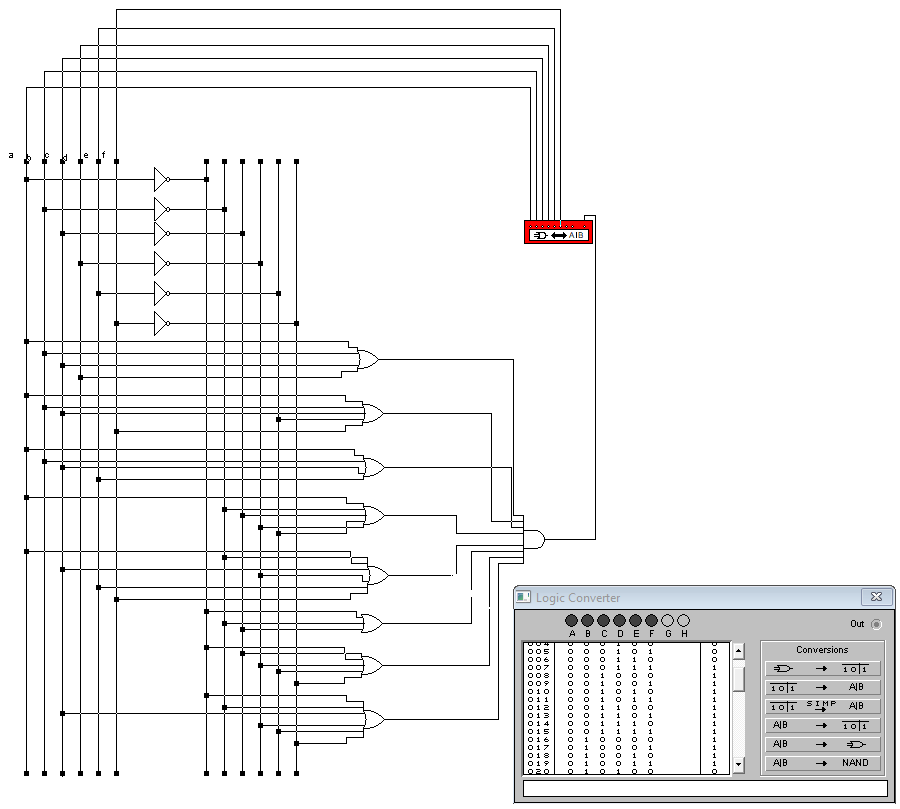


Fig.1. Schema electrica, construita conform functiei logice minimizate

**Experimentul nr. 2.** **Elaborarea schemei electrice logice din elemente ŞI-NU**

f(a,b,c,d,e,f) = (a+b+c+d) × (a+b+c++f) × (a+b+c+e) × (a++++× (a++c++e+f )× ++) × ++++ × ++c+++ = × × × × × × × = × × × × × × =

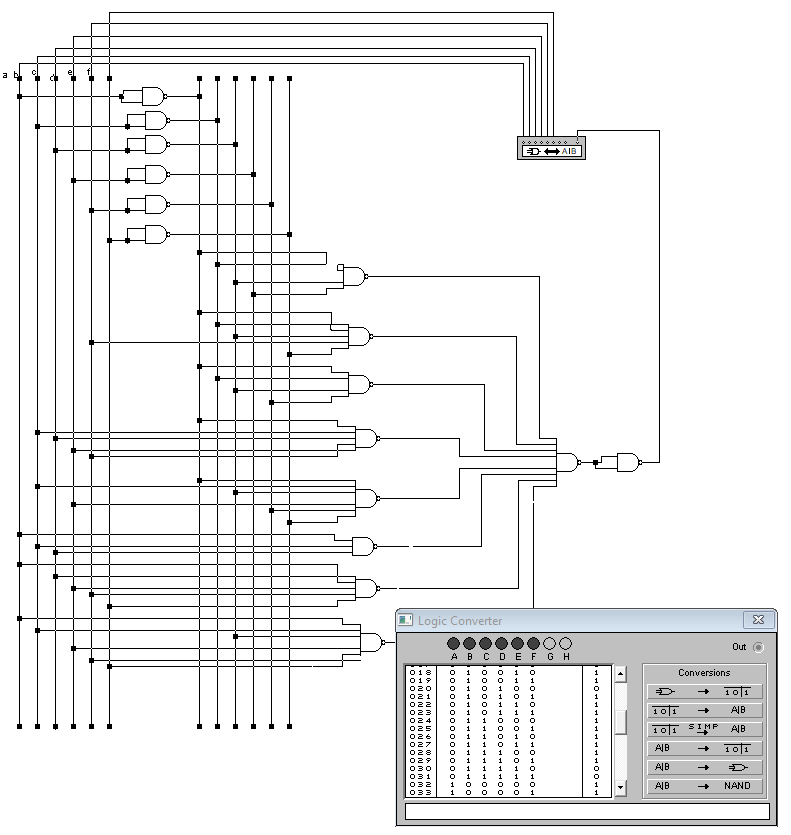


Fig.2. Schema electrica, construita conform functiei logice minimizate cu elementele SI-NU

**Experimentul nr. 3.** **Elaborarea schemei electrice logice din elemente SAU-NU**

f(a,b,c,d,e,f) = (a+b+c+d) × (a+b+c++f) × (a+b+c+e) × (a++++× (a++c++e+f )× ++) × ++++ × ++c+++ =

=

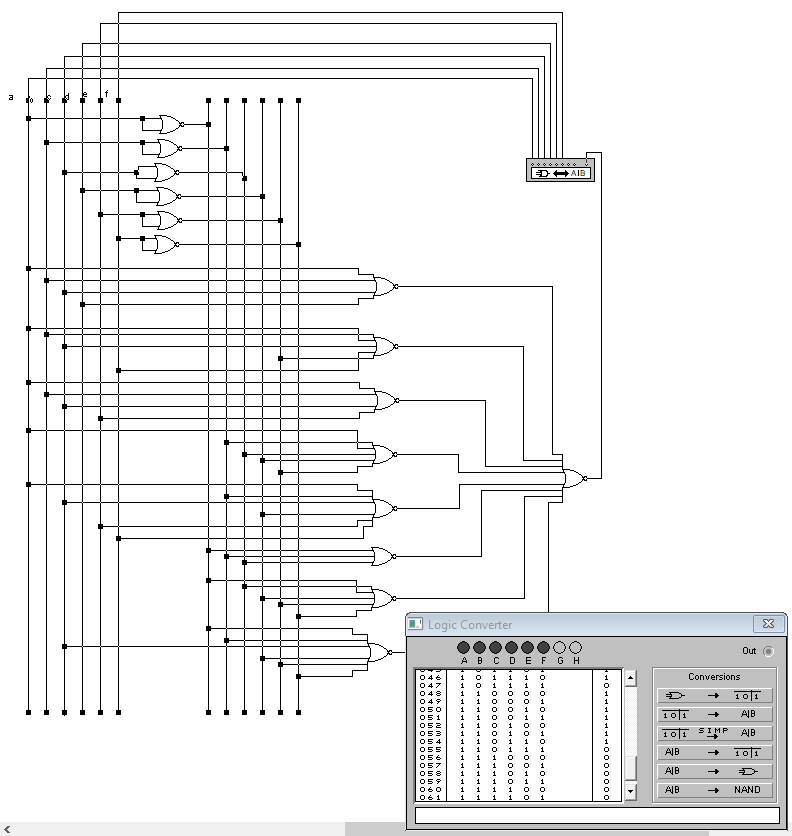


Fig.2. Schema electrica, construita conform functiei logice minimizate cu elementele SAU-NU