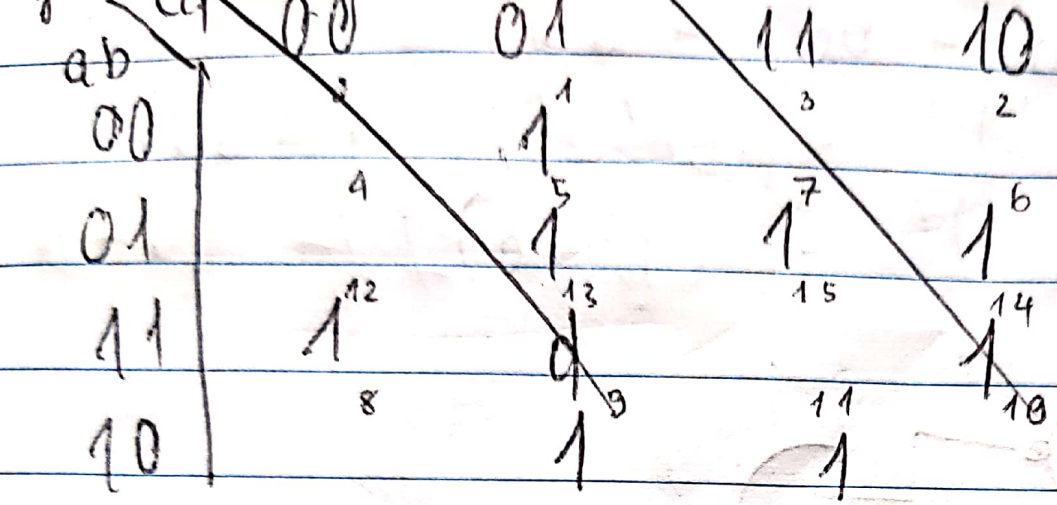
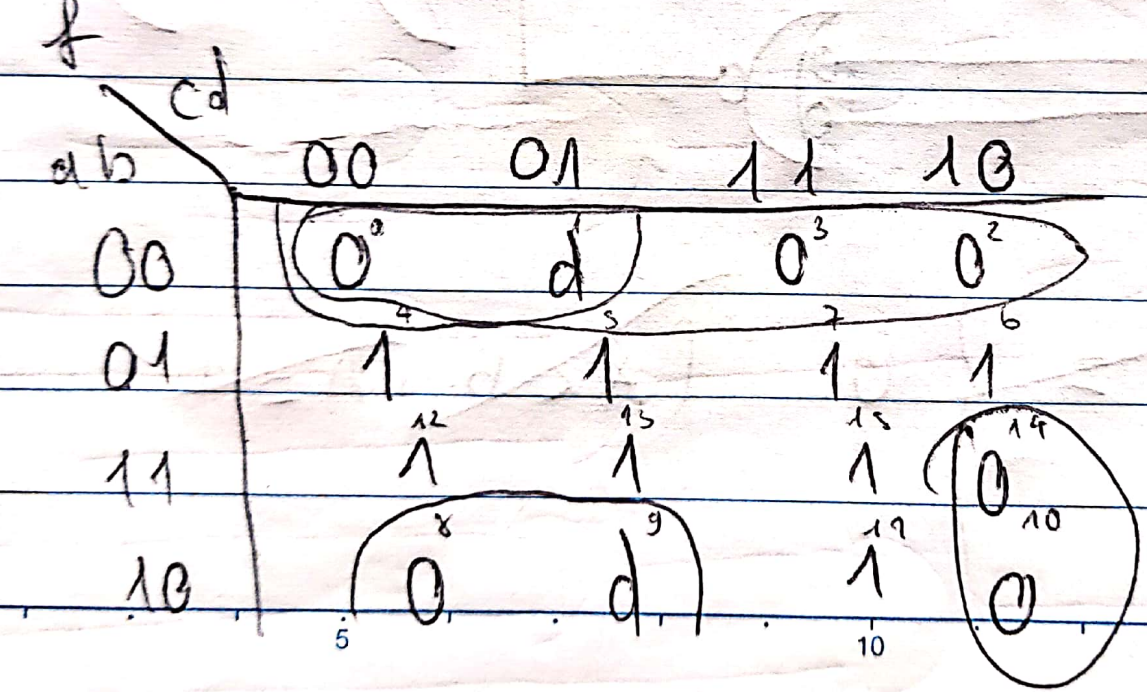


1. $f(a,b,c,d) = \Sigma m(4,5,6,7,11,12,13,15) + D(1,9)$

a) Tích các maxterm



⇒ f = (a+b)(b+c)(a'+b'c'+d)

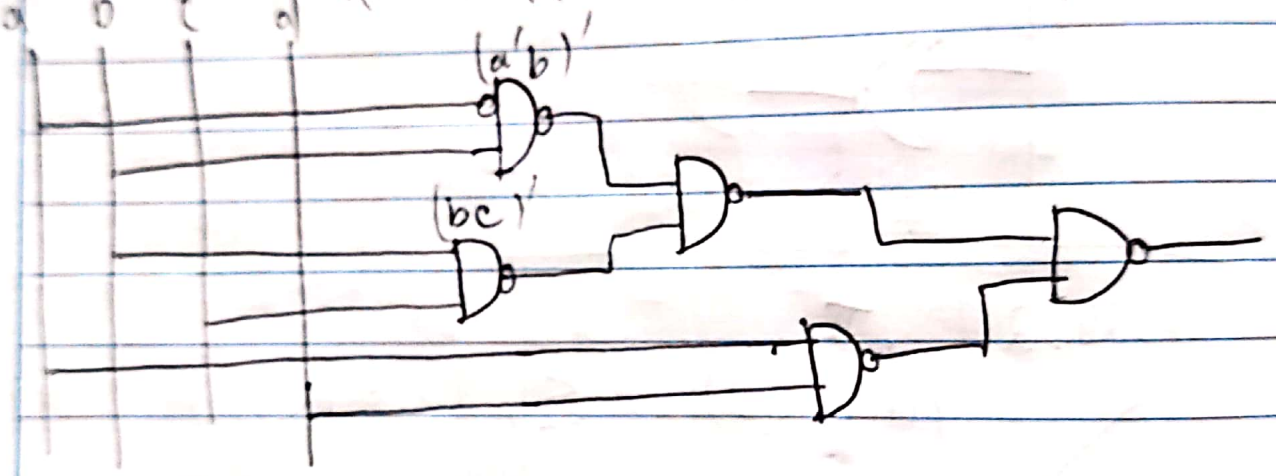
b)

ab \ cd	00	01	11	10
00	0	1	0	0
01	1	1	1	1
11	1	1	1	0
10	0	1	1	0

⇒ f = a'b + bc' + ad

= ((a'b + bc' + ad)')

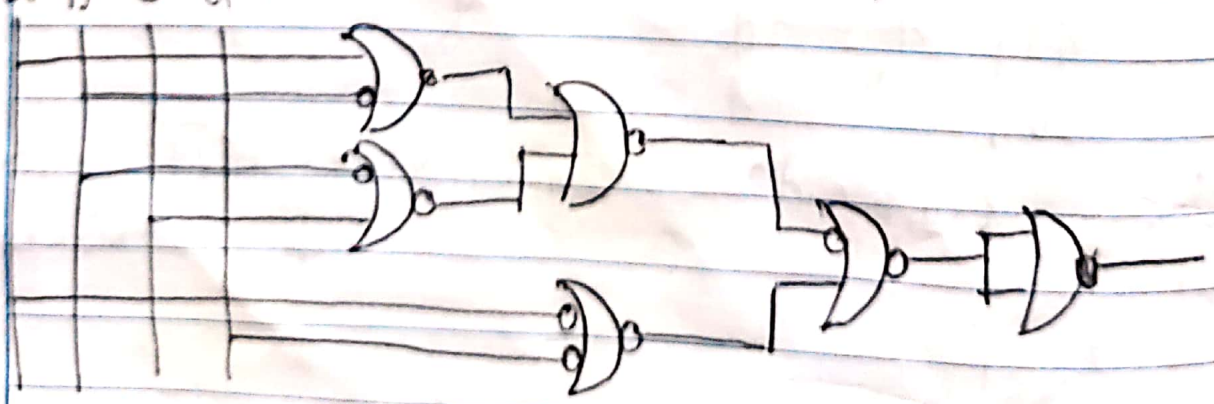
= ((a'b)'.(bc')'.(ad)')' = (((a'b)'.(bc)')'



c) f = a'b + bc' + ad

= ((a'b)')' + ((bc')')' + ((ad)')'

= (((a+b')' + (b'+c)')' + (a'+d')')'



2.

F(A,B) = 0 (A<B, A=1

$x + x'y = x + y$

3. $bc'd' + bd + ab'd + a'bc$

$= b(c'd' + d) + ab'd + a'bc$ (phân bố)

$= b(d' + c) + ab'd + a'bc$

$= bd + bc' + ab'd + a'bc$ (phân bố)

$= d(b + ab') + bc' + a'bc)$ (phân bố)

$= d(b + a) + b(c' + a')$

$= db + da + bc' + a'b$

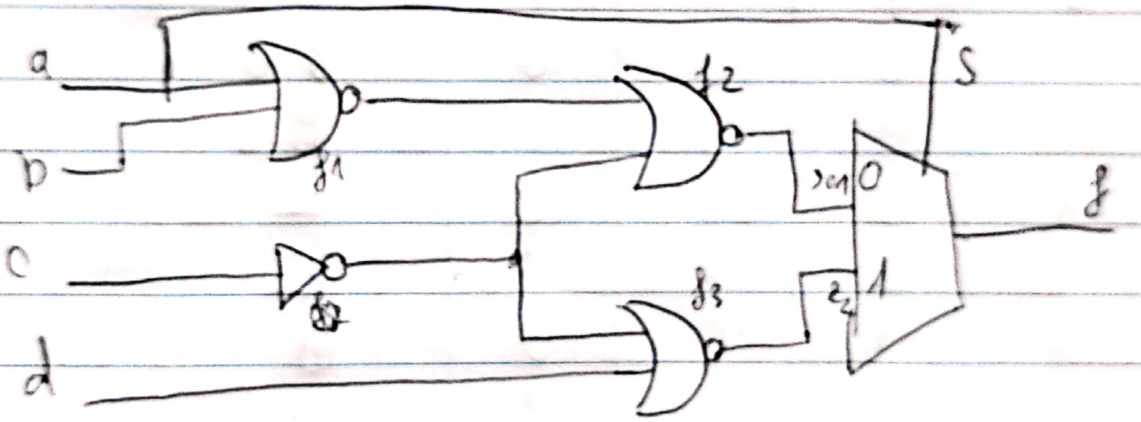
$= db(a' + a) + da + bc' + a'b$ (phần bù)

$= dba' + dba + da + bc' + a'b$ (phân bố)

$= dba' + da + bc' + a'b$ (thu hút)

$= a'b + ad + bc'$ (thu hút)

4.



$f_1 = (a + b)'$

$\Rightarrow f_2 = (c' + (a + b)')'$

$f_3 = (c' + d)'$

Mà $f = x_1 s' + x_2 s$

$\Rightarrow f = (c' + (a+b)')' . a' + (c' + d)' . a$

De Morgan $\Rightarrow f = (c')' . ((a+b)')' . a' + (c')' . d' . a$

$= c . (a + b) a' + c . d' . a$

$= c a a' + cba' + cd'a$

$= cba' + cd'a$ (tổng các minterms)

2.

> 2 ⇒ 11 và 10

< 2 ⇒ 01 và 00

A		B		F(A,B)	
a_1	a_0	b_1	b_0		
0	0	0	0	d	0
0	0	0	1	0	1
0	0	1	0	0	2
0	0	1	1	0	3
0	1	0	0	d	4
0	1	0	1	d	5
0	1	1	0	0	6
0	1	1	1	0	7
1	0	0	0	0	8
1	0	0	1	0	9
1	0	1	0	1	10
1	0	1	1	1	11
1	1	0	0	0	12
1	1	0	1	0	13
1	1	1	0	0	14
1	1	1	1	1	15

1 A ≤ B và A ≠ B

d A ≠ B và A = B

0 còn lại

F

a_1a_0 \ b_1b_0	00	01	11	10
00	d	0	0	0
01	d	d	0	0
11	0	0	1	0
10	0	0	1	1

⇒ $a_1b_1b_0 + a_1a_0'b_1$