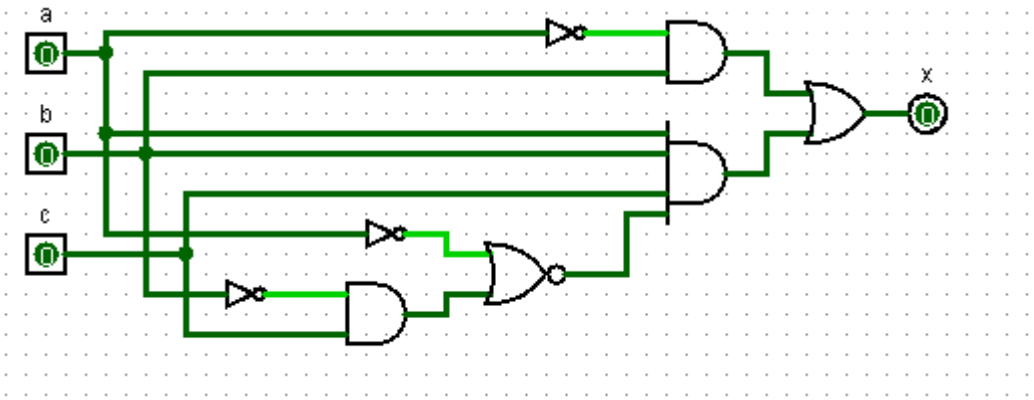
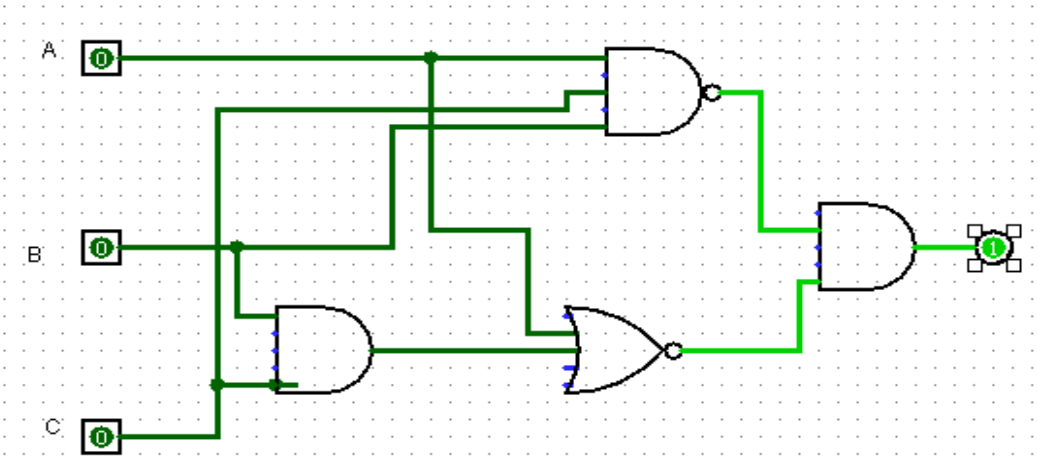
Atividade LogiSim, Circuitos Digitais. - Ciencias da Computação

Igor Radtke

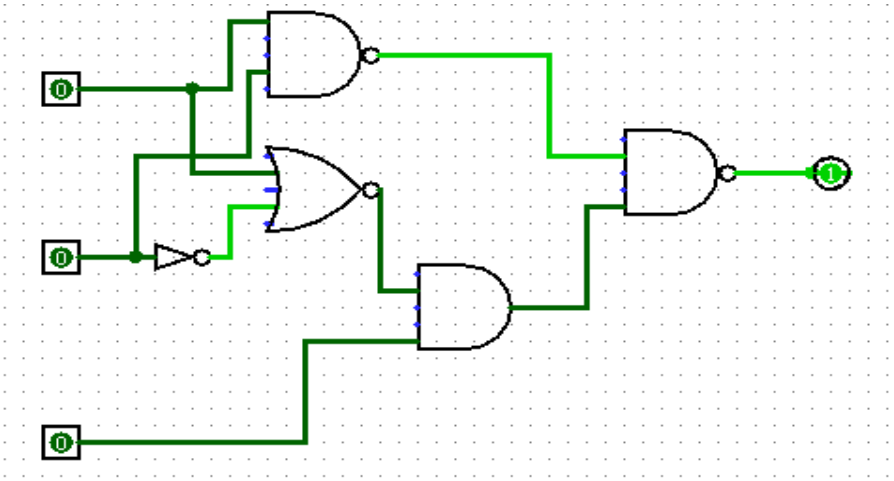
1-A)



1-B)



1-C)



2-A)

a	b	c	x
0	0	0	0
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	1

2-B)

a	b	c	x
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	0
1	0	1	0
1	1	0	0
1	1	1	0

2-C)

a	b	c	x
0	0	0	1
0	0	1	1
0	1	0	1
0	1	1	0
1	0	0	1
1	0	1	1
1	1	0	1
1	1	1	1

3-A)

a	b	c	d	x
0	0	0	0	1
0	0	0	1	1
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	1
0	1	1	0	1
0	1	1	1	0
1	0	0	0	1
1	0	0	1	1
1	0	1	0	0
1	0	1	1	0
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	0

3-B)

a	b	c	d	x
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	1
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	0
1	1	1	1	0

3-C)

a	b	c	d	x
0	0	0	0	1
0	0	0	1	1
0	0	1	0	1
0	0	1	1	1
0	1	0	0	1
0	1	0	1	1
0	1	1	0	1
0	1	1	1	1
1	0	0	0	1
1	0	0	1	1
1	0	1	0	0
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

4-A) S=(a,b,c,d) = sum(m0, m1, m5, m6, m8, m9, m12, m13, m14)

	Minitermo		
0	'a . 'b . 'c . 'd		
1	'a . 'b . 'c . d		
5	'a . b . 'c . d		
6	'a . b . c . 'd		
8	a . 'b . 'c . 'd		
9	a . 'b . 'c . d		
12	a . b . 'c . 'd		' negado
13	a . b . 'c . d		
14	a . b . c . 'd		

4-B) S=(a,b,c,d) = sum(m4, m5, m6, m7, m8, m9, m10, m11, m12, m13)

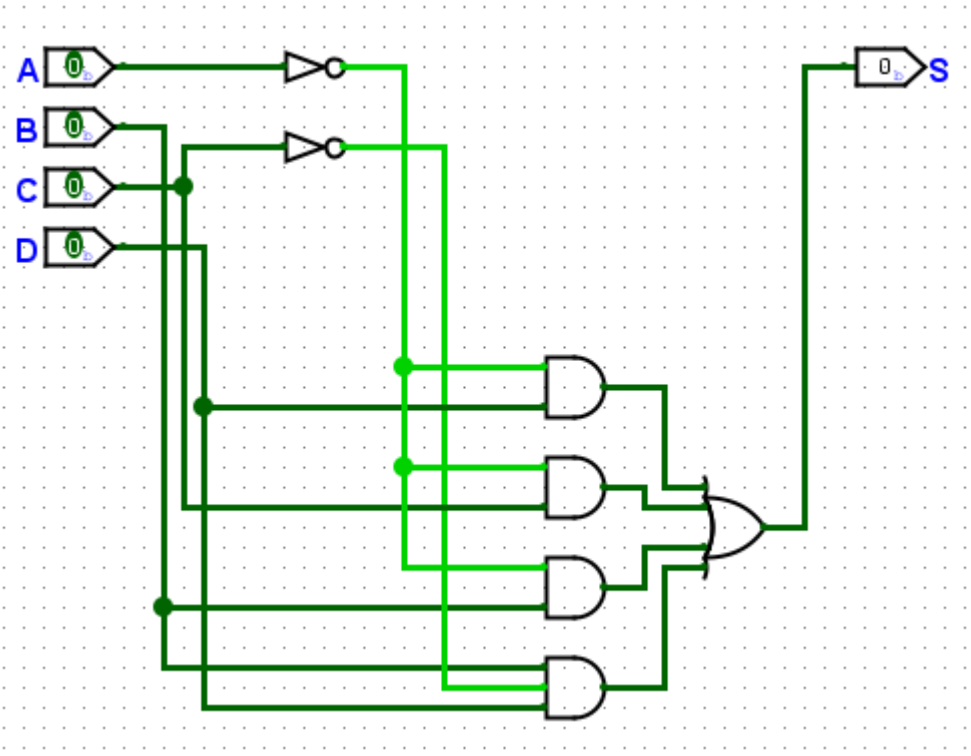
	Minitermo		
4	'a . b . 'c . 'd		
5	'a . b . 'c . d		
6	'a . b . c . 'd		
7	'a . b . c . d		
8	a . 'b . 'c . 'd		
9	a . 'b . 'c . d		
10	a . 'b . c . 'd		' negado
11	a . b . 'c . d		
12	a . b . 'c . 'd		
13	a . b . 'c . d		

4-C) S=(a,b,c,d) = sum(m0, m1, m2, m3, m4, m5, m6, m7, m8, m9, m10, m12, m13, m14, m15)

mx	Index
'A.'B.'C.'D	0
'A.'B.'C.D	1
'A.'B.C.'D	2
'A.'B.C.D	3
'A.B.'C.'D	4
'A.B.'C.D	5
'A.B.C.'D	6
'A.B.C.D	7
A.'B.'C.'D	8
A.'B.'C.D	9
A.'B.C.'D	10
A.B.'C.'D	12
A.B.'C.D	13
A.B.C.'D	14
A.B.C.D	15

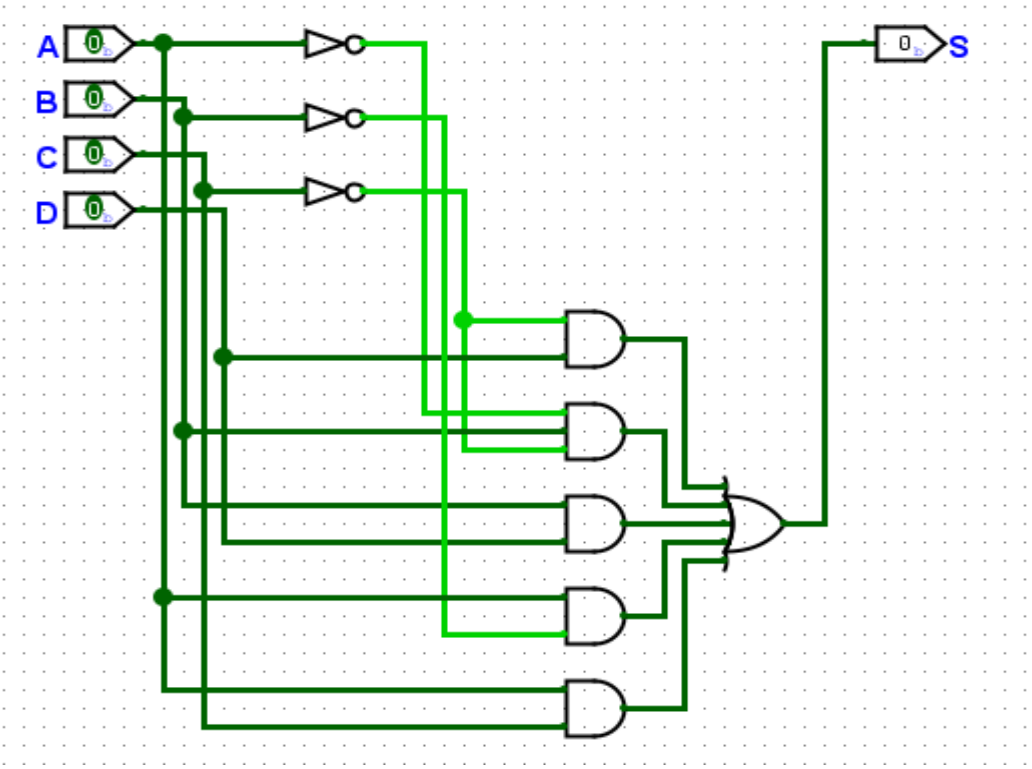
5-A)

	Minitermo		
1	'a . 'b . 'c . d		
2	'a . 'b . c . 'd		
3	'a . 'b . c . d		
4	'a . b . 'c . 'd		
5	'a . b . 'c . d		
6	'a . b . c . 'd		
7	'a . b . c . d		' negado
13	'a . 'b . c . 'd		



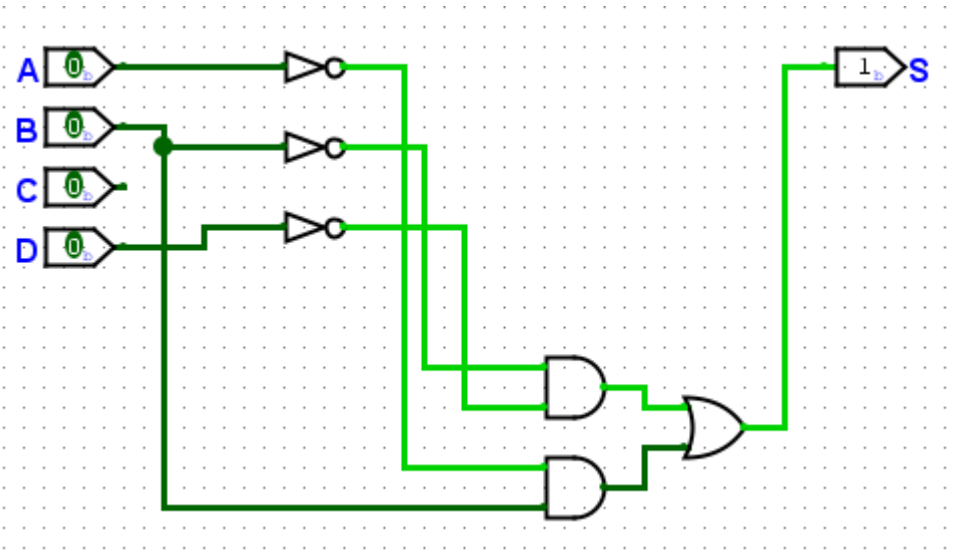
5-B)

	maxtermo
0	a + b + c + d
2	a + b + 'c + d
3	a + b + 'c + 'd
6	a + 'b + 'c + d
12	'a + 'b + c + d



5-C)

	Minitermo
0	'a . 'b . 'c . 'd
2	'a . 'b . c . 'd
4	'a . b . 'c . 'd
5	'a . b . 'c . d
6	'a . b . c . 'd
7	'a . b . c . d
8	a . 'b . 'c . 'd
10	a . 'b . c . 'd



6-A)

$$f = \overline{a \cdot a \cdot b \cdot a \cdot b \cdot b}$$

$$g = \overline{a \cdot b \cdot b + a \cdot b + b}$$

a	b	f	g
0	0	0	0
0	1	1	1
1	0	1	0
1	1	0	0

6-B)

$$\overline{\overline{c} + \overline{b} + \overline{a}} + \overline{a \wedge c}\, a + (a\, b + b)\, c$$

a	b	c	x
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	0
1	0	1	1
1	1	0	0
1	1	1	1