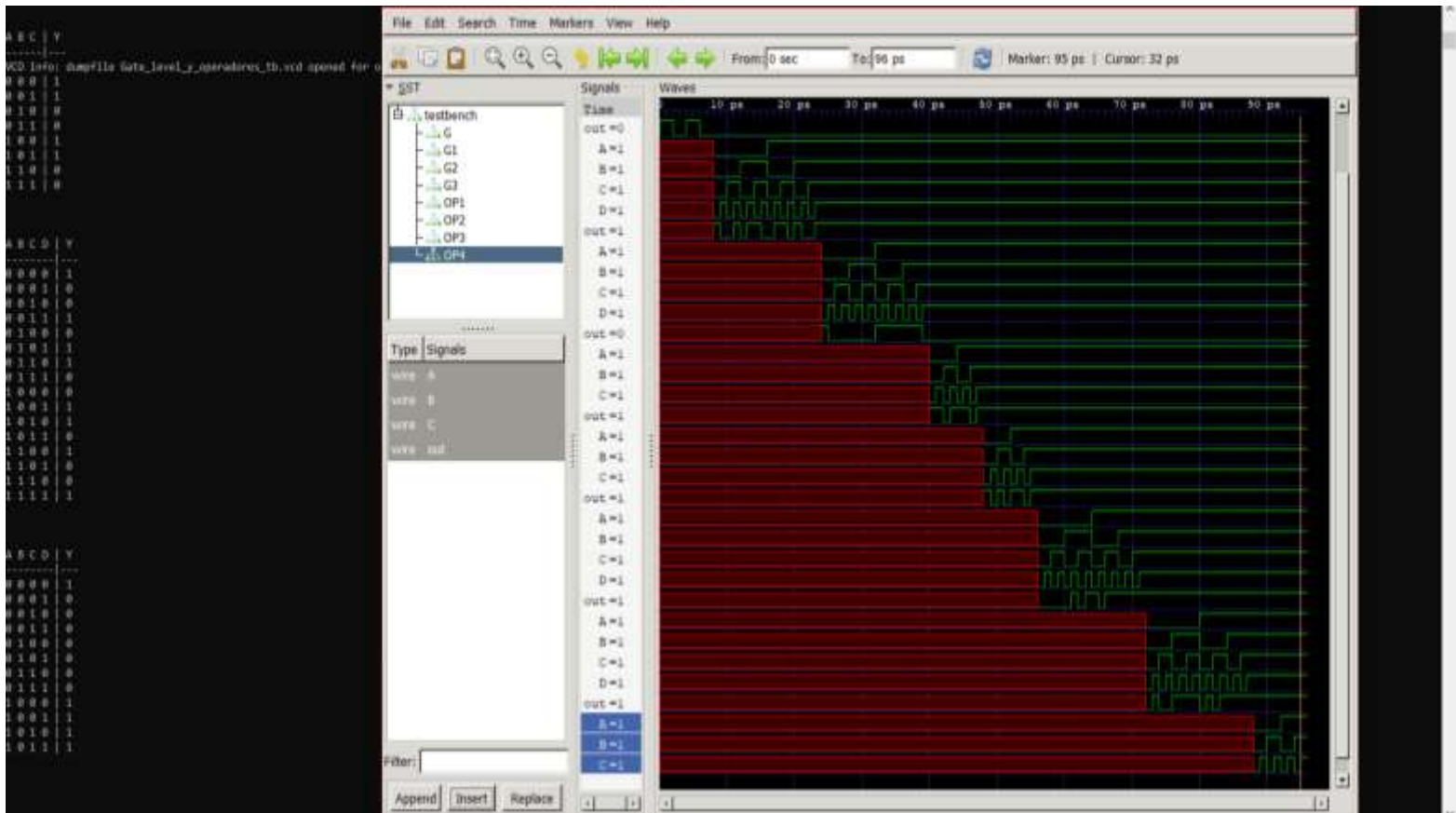
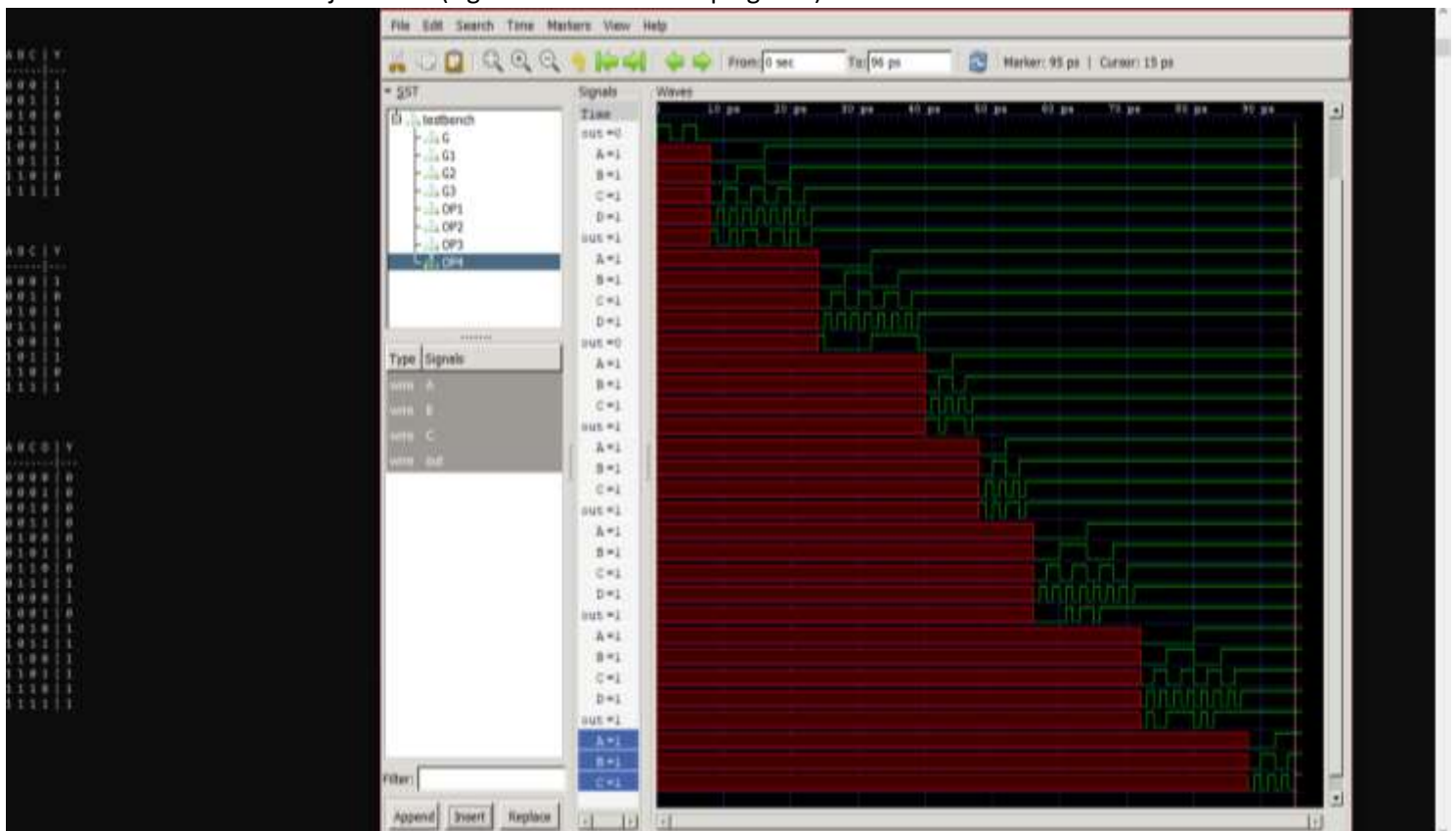


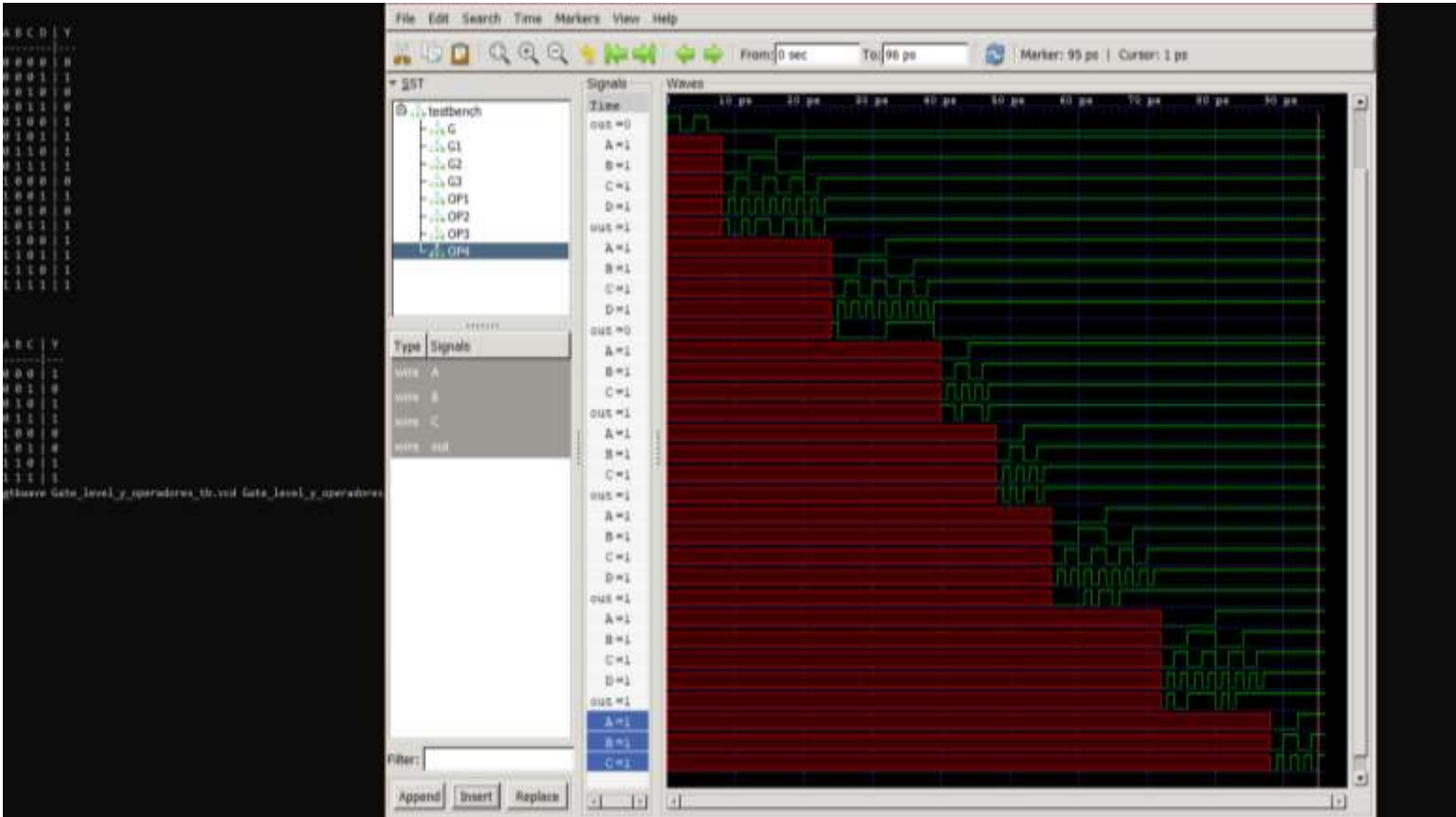
GTKWave del ejercicio 4 (primeras 3 tablas desplegadas)



GTKWave del ejercicio 4 (siguientes 3 tablas desplegadas)



The screenshot displays a digital logic simulation environment. On the left, a testbench is shown with a table of inputs (A, B, C, D) and outputs (OP1, OP2, OP3, OP4). The testbench is configured to simulate a 4-bit adder. The main window shows a timing diagram with a time scale from 0 to 100 ps. The diagram displays the waveforms for the inputs A, B, C, and D, and the outputs OP1, OP2, OP3, and OP4. The inputs A, B, C, and D are shown as red square waves, while the outputs OP1, OP2, OP3, and OP4 are shown as green square waves. The timing diagram illustrates the propagation delay of the adder, with the outputs changing after a short delay following a change in the inputs.



# Lab #4

## Ejercicio 1

tabla 01

Y	AB				
		00	01	11	10
C	0	1	1	0	1
	1	0	0	1	1

$$Y = AC + \bar{A}\bar{C} + \bar{B}\bar{C}$$

tabla 02

Y	AB				
		00	01	11	10
C	0	1	0	0	X
	1	X	0	0	1

$$Y = \bar{B}$$



tabla 03

AB \ CD	00	01	11	10
00	1	0	1	0
01	0	1	0	1
11	1	0	1	0
10	0	1	0	1

$$Y = \bar{A}\bar{B}\bar{C}\bar{D} + \bar{A}\bar{B}CD + \bar{A}B\bar{C}\bar{D} + \bar{A}BC\bar{D} + AB\bar{C}\bar{D} + ABCD + A\bar{B}\bar{C}D + A\bar{B}CD$$

tabla 4

Y \ AB \ CD	00	01	11	10
00	X	0	1	1
01	X	X	1	0
11	0	X	1	1
10	X	0	X	X

$$Y = \bar{B}D + A\bar{D} + AC$$

# Ejercicio 02

$$1) Y = A \cdot B \cdot \overset{0}{C} \cdot \overline{D} + A \cdot \overset{0}{B} \cdot C \cdot D + \overline{(A+B+C+D)}$$

A	B	C	D	Y
0	0	0	0	1
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
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	1
1	1	1	1	0

Y	AB	00	01	11	10
CD					
00		1	0	1	1
01		0	0	1	1
11		0	0	0	1
10		0	0	1	1

$$Y = A\overline{C} + A\overline{D} + A\overline{B} + \overline{B}\overline{C}\overline{D}$$

A	B	C	D	Y
1	X	0	X	1
1	X	X	0	1
1	0	X	X	1
X	0	0	0	1



$$2) Y = \bar{A} \cdot \bar{B} \cdot C + \bar{B} \cdot \bar{C} + B \cdot C$$

A	B	C	Y
0	0	0	1
0	0	1	1
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	1
1	1	0	0
1	1	1	1

Y	AB	00	01	11	10
C	0	1	0	0	1
1	1	1	1	1	1

$$Y = C + \bar{B}$$

A	B	C	Y
x	0	x	1
x	x	1	1

$$3) Y = (\overline{A+B+C \cdot D}) + A \cdot D + B$$

A	B	C	D	Y
0	0	0	0	0
0	0	0	1	1
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	0
1	0	0	1	0
1	0	1	0	1
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

Y AB	00	01	11	10
CD				
00	0	1	1	0
01	1	1	1	1
11	0	1	1	1
10	0	1	1	0

A	B	C	D	Y
x	1	x	x	1
x	x	0	1	1
1	x	x	1	1

$$Y = B + \bar{C}D + AD$$

$$4) Y = B \cdot C + \bar{A} \cdot \bar{B} \cdot \bar{C} + B \cdot \bar{C}$$

A	B	C	Y
0	0	0	1
0	0	1	0
0	1	0	1
0	1	1	1
1	0	0	0
1	0	1	0
1	1	0	1
1	1	1	1

Y \ AB \ C	00	01	11	10
0	1	1	1	0
1	0	1	1	0

$$Y = B + \bar{A}\bar{C}$$

A	B	C	Y
X	1	X	1
0	X	0	1



# Ejercicio 05

S	M	W	A
0	0	0	0
0	0	1	0
0	1	0	0
0	1	1	0
1	0	0	1
1	0	1	0
1	1	0	1
1	1	1	1

SOP

$$Y = S \cdot \bar{M} \cdot \bar{W} + S \cdot M \cdot \bar{W} + SMW$$

POS

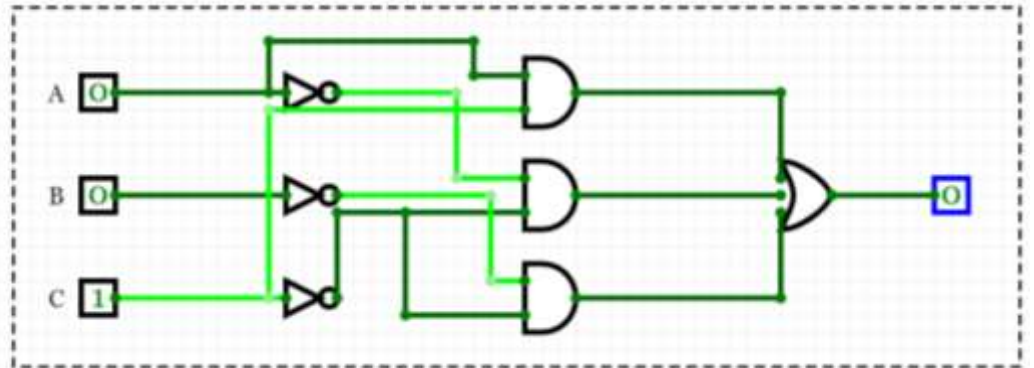
$$Y = (S + M + W) \cdot (S + M + \bar{W}) \cdot (S + \bar{M} + W) \cdot (S + \bar{M} + \bar{W})$$

Y	W	00	01	11	10
0	0	0	0	1	1
1	0	0	0	1	0

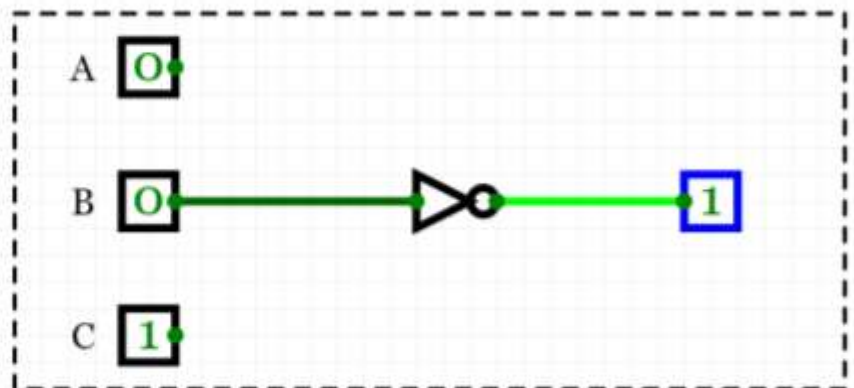
$$Y = S\bar{W} + SM$$



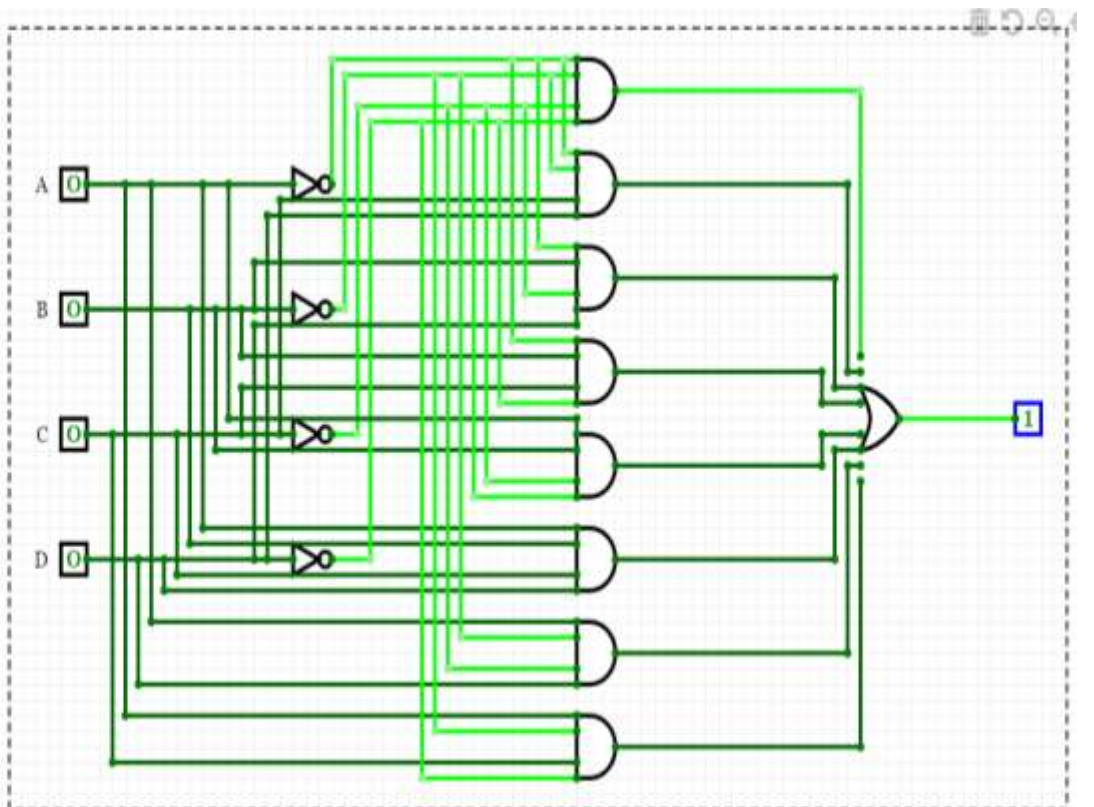
Circuito 1 del ejercicio 1



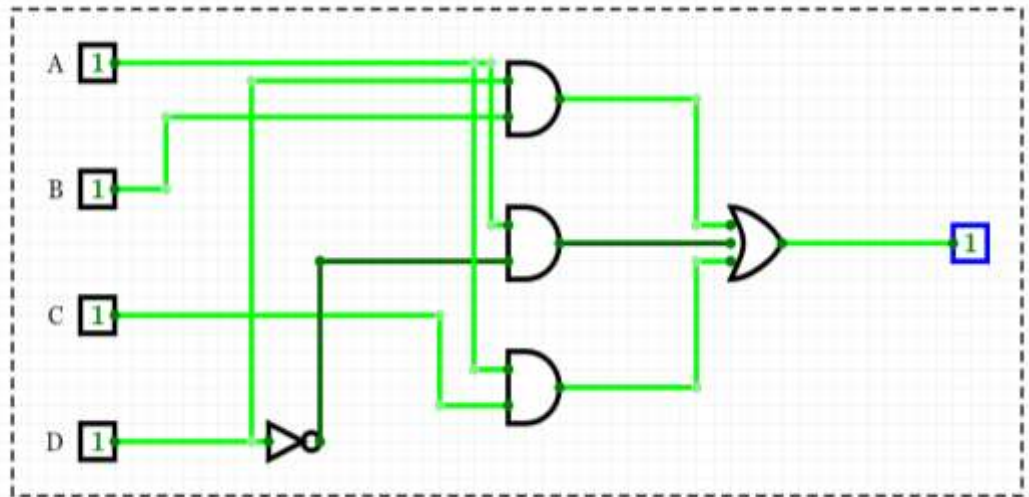
Circuito 2 del ejercicio 1



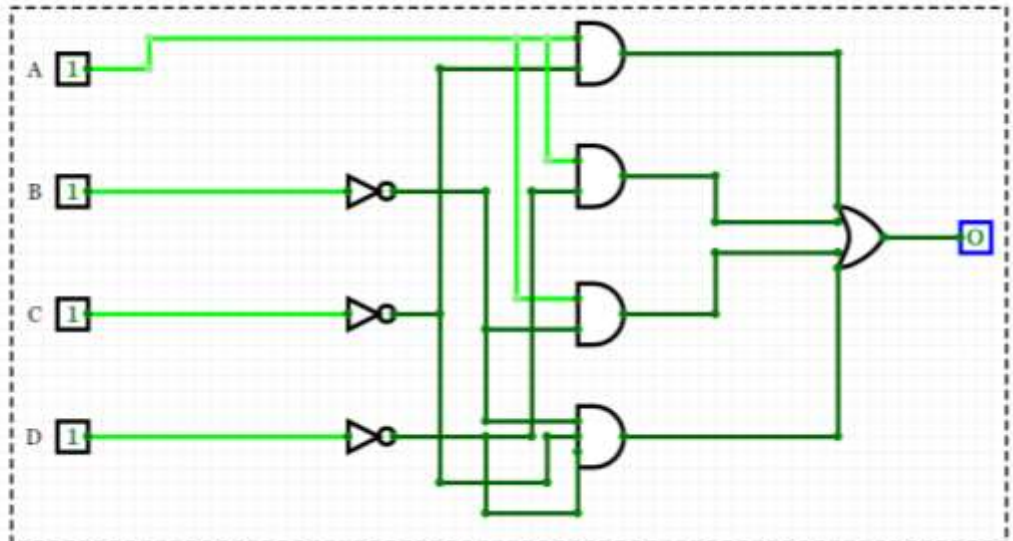
Circuito 3 del ejercicio 1



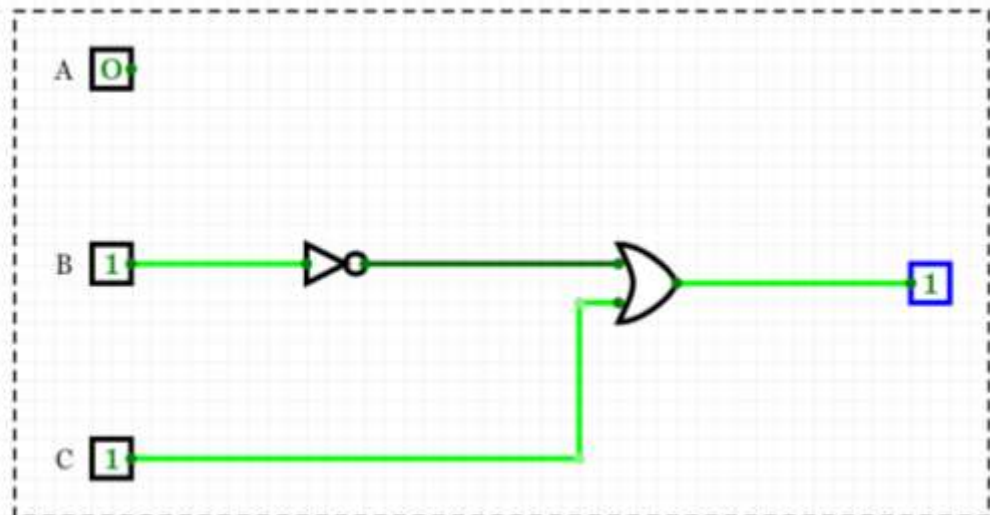
Circuito 4 ejercicio 1



Circuito 1 del ejercicio 2

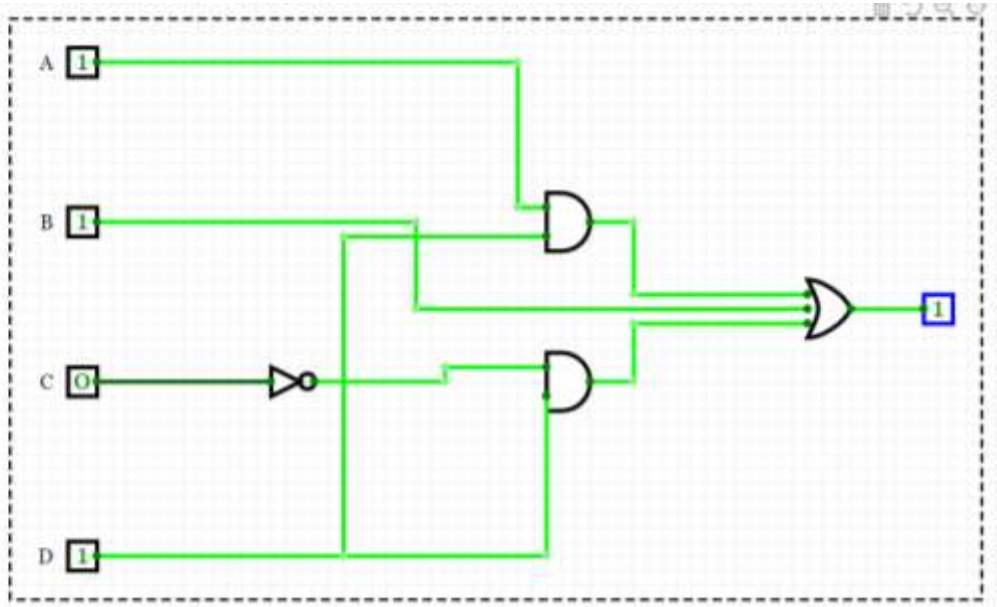


Circuitos 2 ejercicio 2

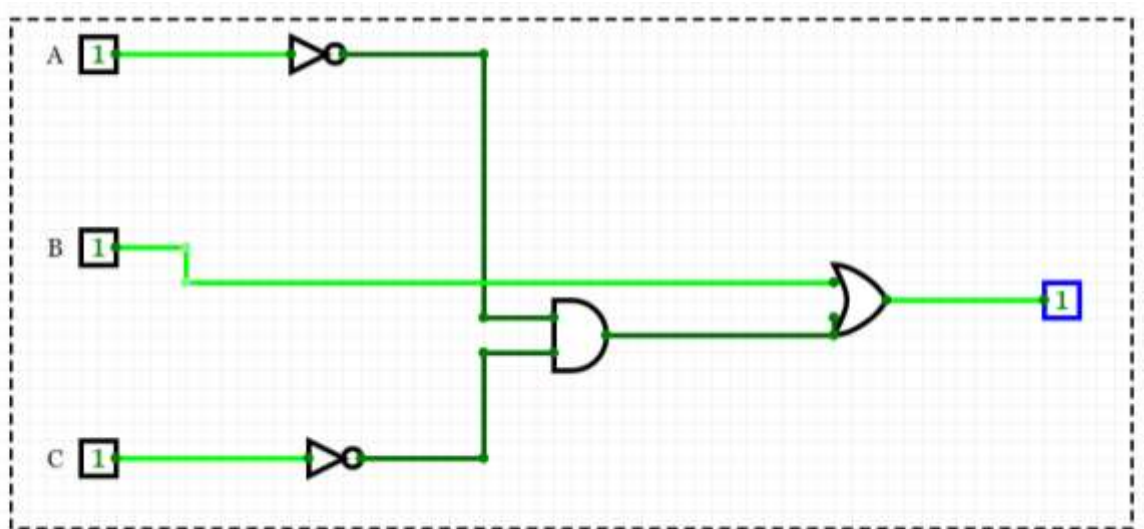




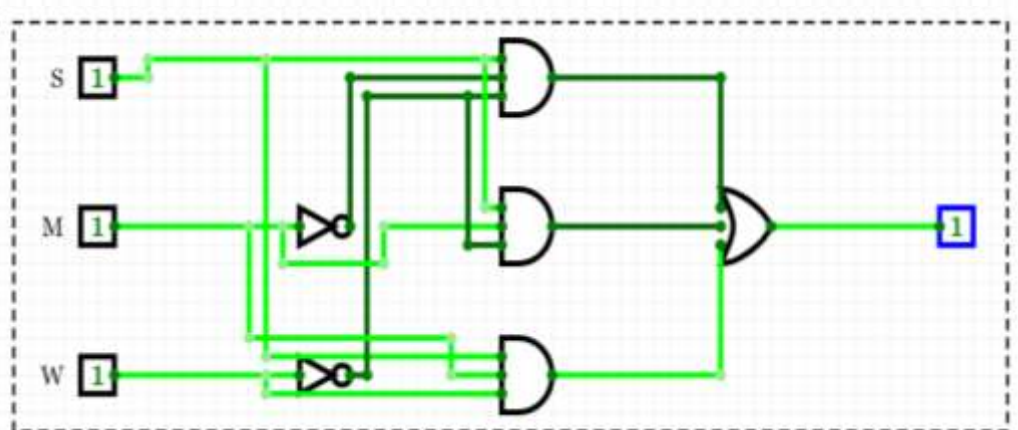
Circuito 3 ejercicio 2



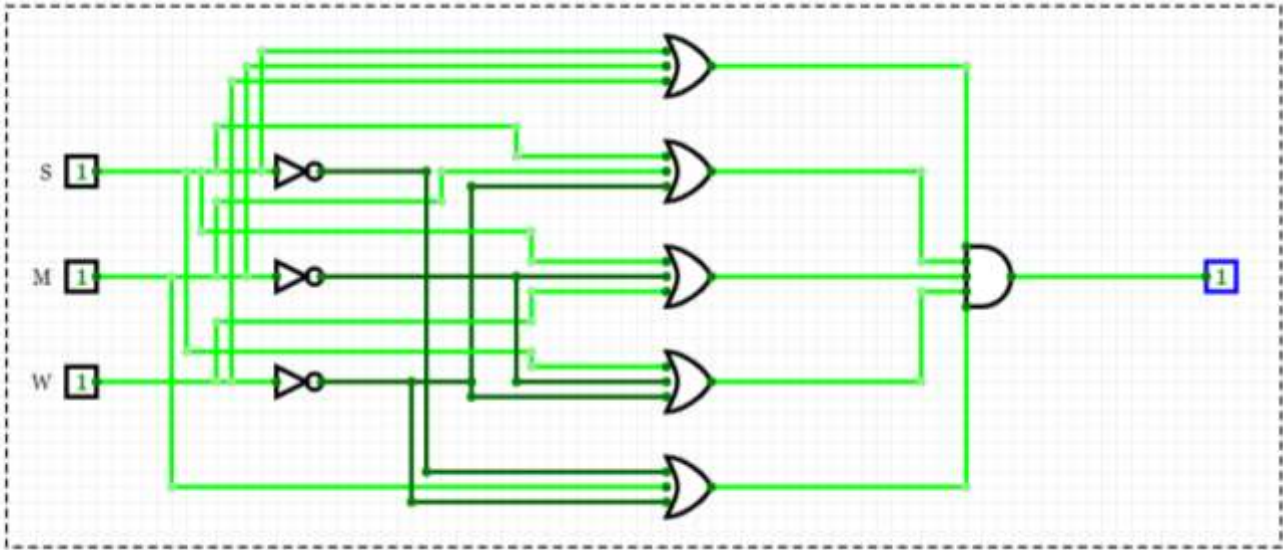
Circuito 4 del ejercicio 2



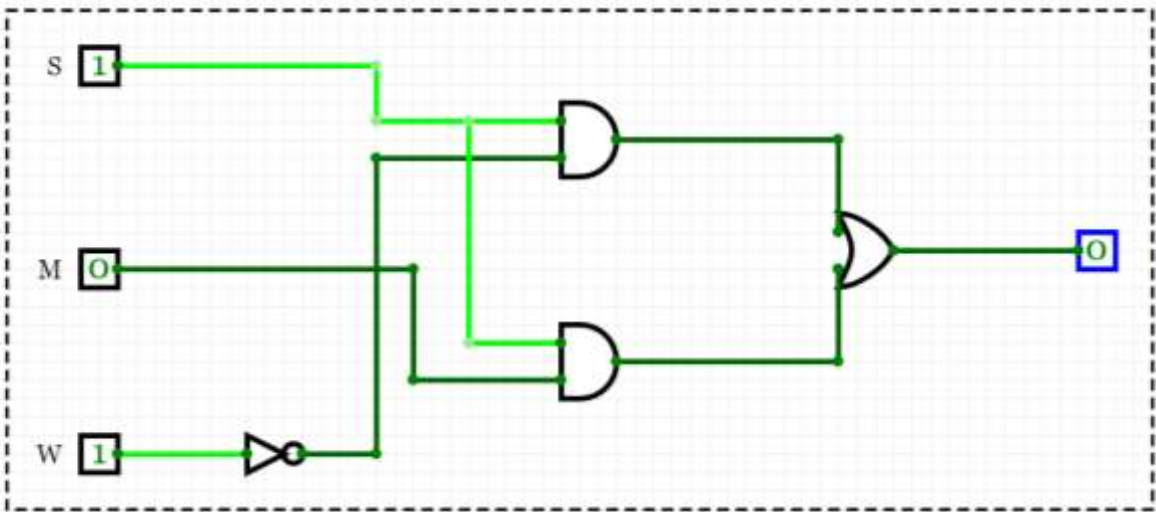
Circuito SOP del ejercicio 5



Circuito POS del ejercicio 5

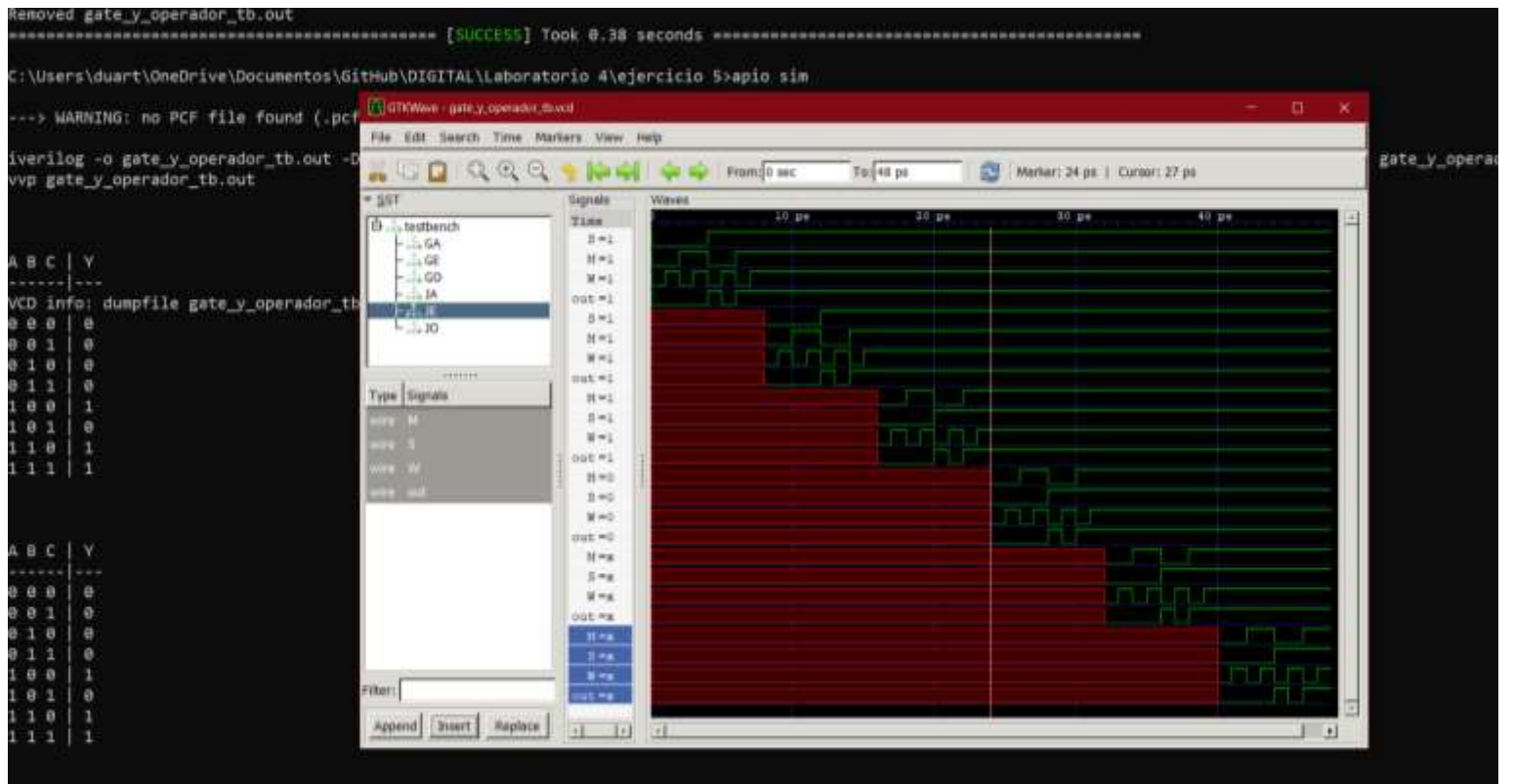


Circuito reducido del ejercicio 5

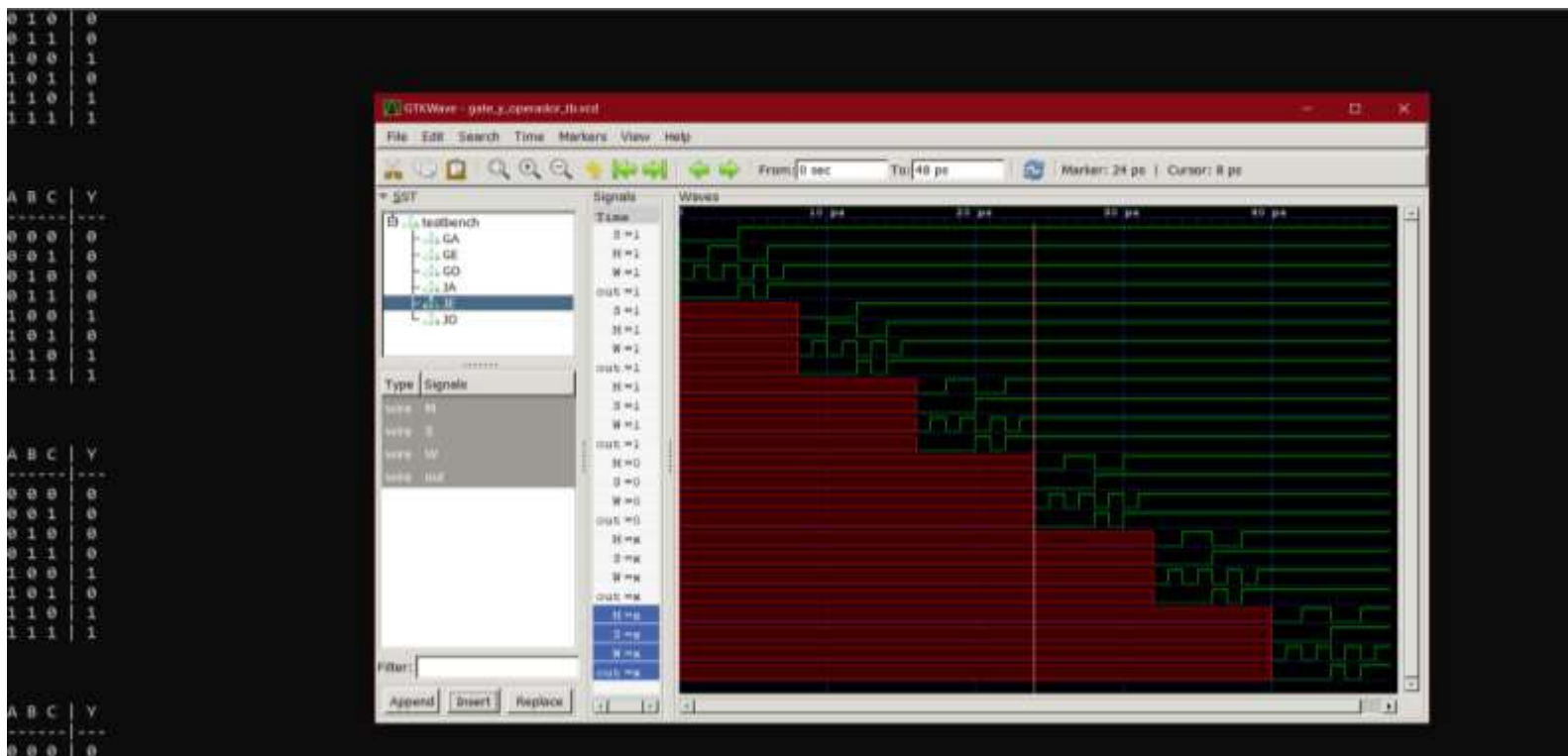




GTKWave ejercicio 5 primeras dos tablas desplegadas.



GTKWave ejercicio 5 siguientes dos tablas desplegadas.



GTKWave ejercicio 5 últimas dos tablas desplegadas

