23. **FULL ADDER**

EXP.NO: 23

AIM: To design and implement the full adder using Logisim simulator.

PROCEDURE:

1) Pick and place the necessary gates.
2) Insert 3 inputs into the canvas.
3) Connect the inputs to the XOR gate, AND gate and OR gate.
4) Insert 2 outputs into the canvas.
5) Make the connections using the connecting wires.
6) Verify the truth table.

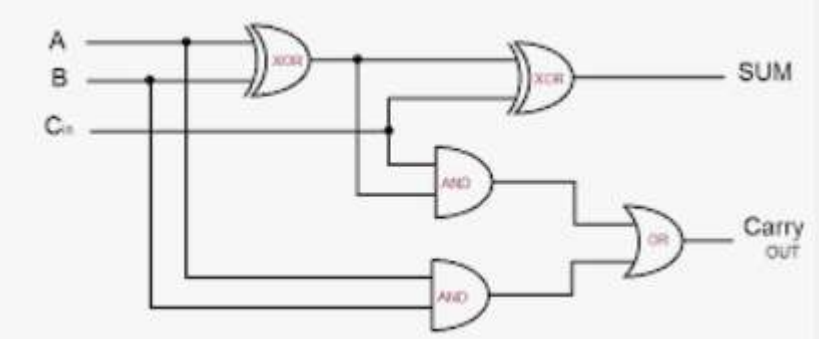
TRUTH TABLE:

Inputs			Outputs	
A	B	C_{in}	Sum	Carry
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

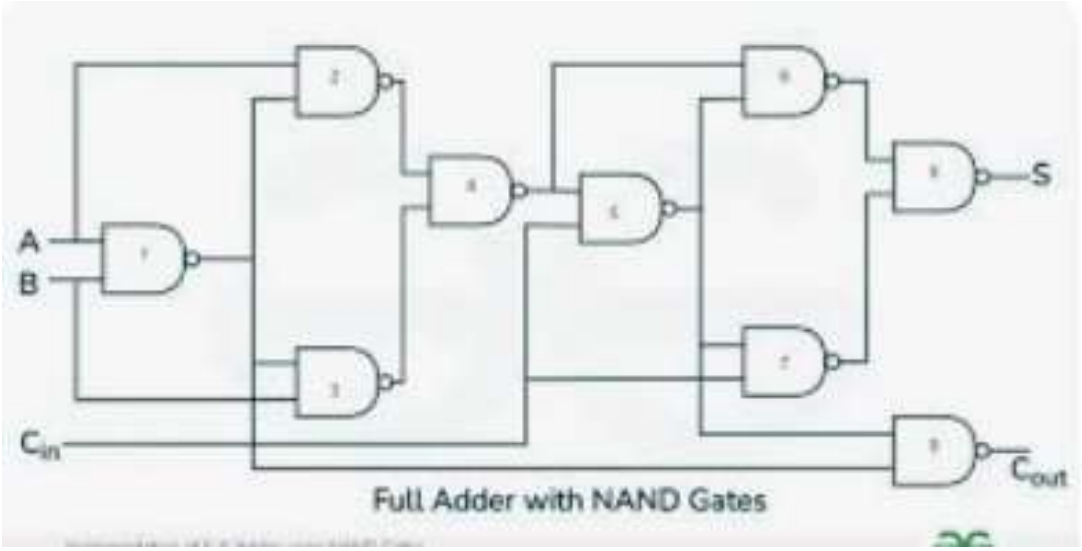
Sum=(A⊕B) ⊕Cin

Carry=A.B+ (A ⊕B)

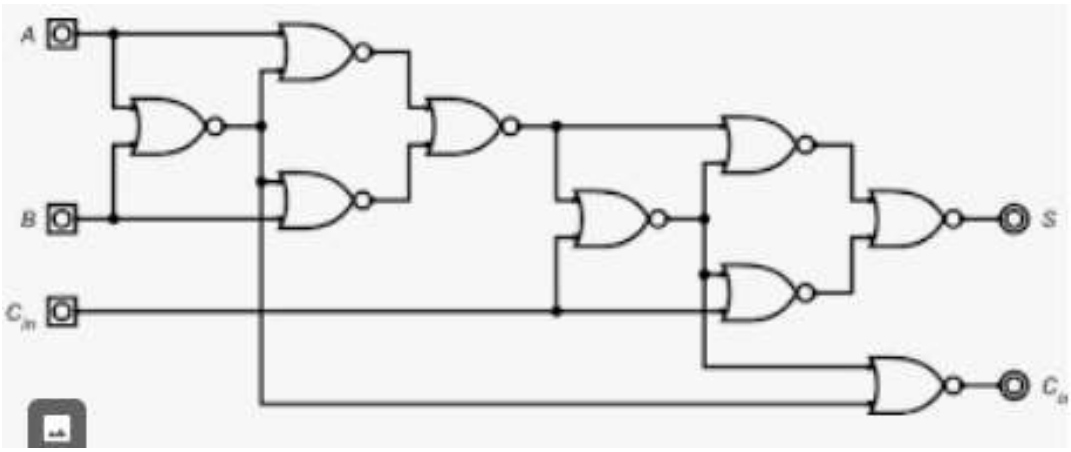
Logical Diagram:



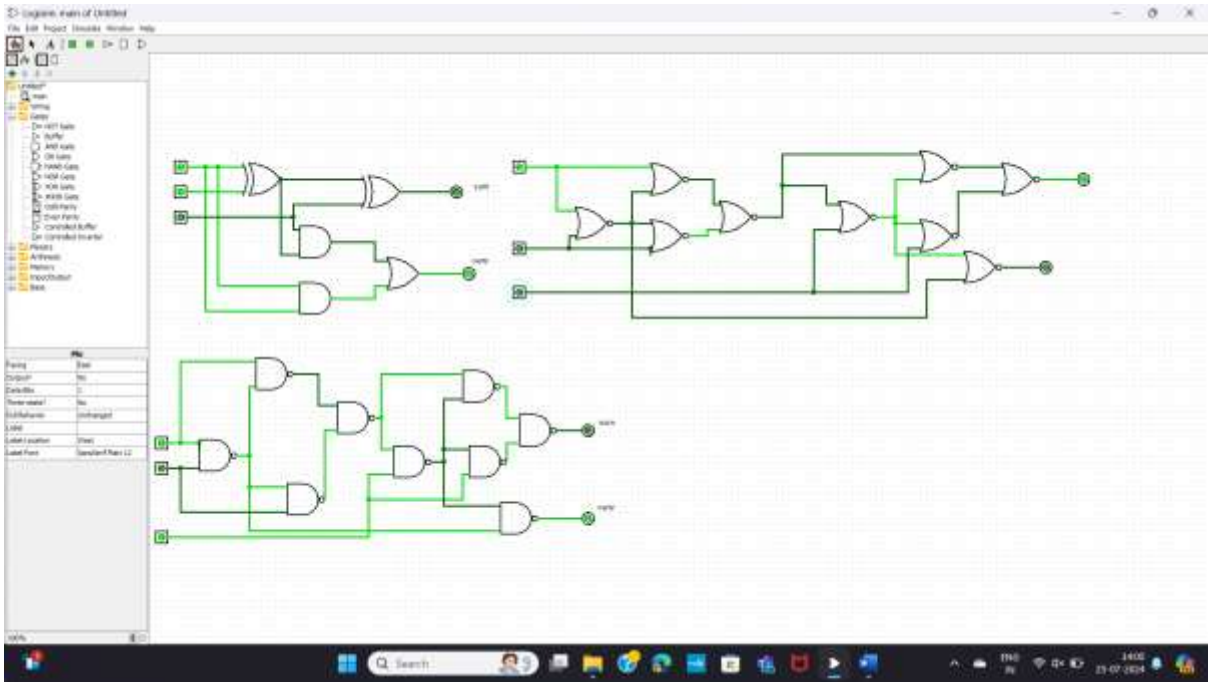
Full adder using NAND Gates:



Full adder using NOR Gates:



OUTPUT



RESULT: Thus full adder has been designed and implemented successfully using logisim simulator.