**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.
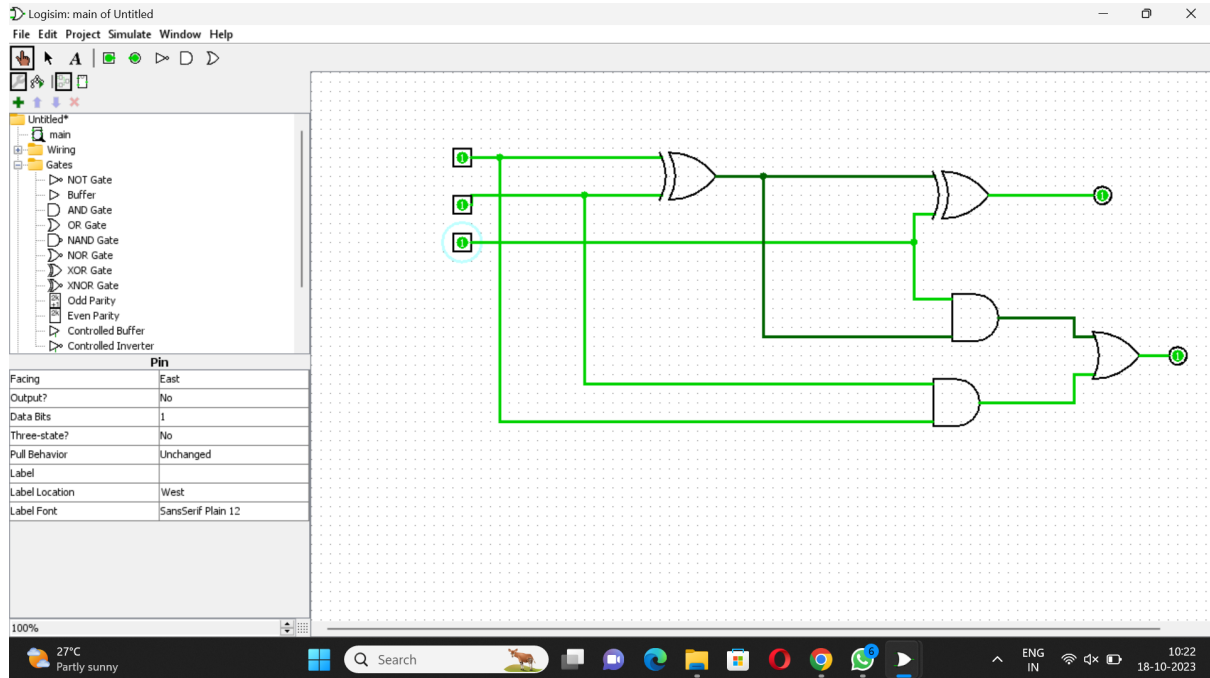
6)      Verify the truth table.

**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)

**OUTPUT**



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