Name: Ameer Hamza

Roll no. 22201018 – 045

**Subject:** DLD lab

Class: ADP – Computer Science

Semester 2nd

Instructor: Dr. Asma Nazir

❖ **Topic:** Conversion of **AND** gate into **OR** gate using **3 NOT** gates**:**

- **Principal of the Conversion:**

  In this circuit we use 2 NOT gates attached with the 2 inputs of AND gate separately, then the output of AND gate is attached to another NOT gate so, its formula is $(A.B)` = A`+ B`$. In the below diagram we have passed 0 inputs on both sides hence we get 0 output.
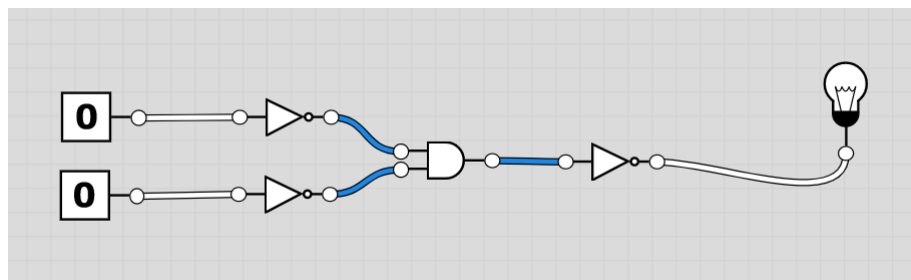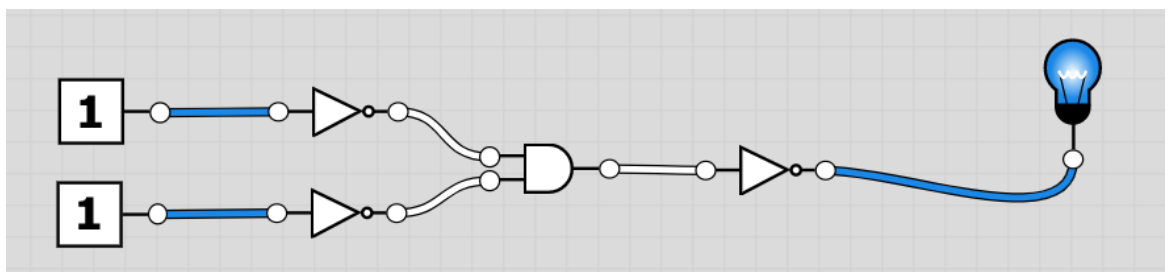

  o **Working**:

  When we have passed low inputs, the input will invert themselves from low to high because of the inverter then high bit will be passed to AND gate. And as we know in AND gate High bit inputs are equal to High Output. So we will get High output. Next high output will be passed to the inverter which will make the high input into low output.
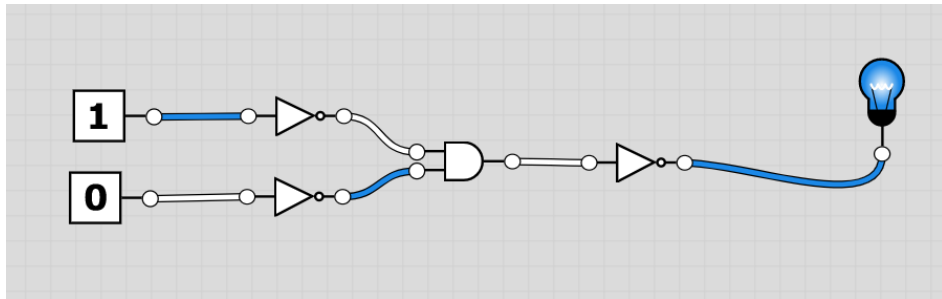
o **Working:**

When we pass one high input in the circuit the output will also becomes high. Because Inverter will invert the input. And in AND gate one high and other low inputs are equal to low inputs. And after the AND gate NOT gate will again invert the bit into HIGH hence high output is achieved.

o Hence at last when we pass both high inputs the output will also become HIGH.

- **Truth Table:**

A	B	C (output)
0	0	0
1	1	1
0	1	1
1	0	1

- **Working Table:**

1st INPUT	2ND INPUT	1st NOT gate output	2nd NOT gate output	AND gate output	3rd NOT gate output	OUTPUT
0	0	1	1	1	0	0
1	1	0	0	0	1	1
0	1	1	0	0	1	1
1	0	0	1	0	1	1