LAB 1 REPORT:

STIMULATION OF IC's AS LOGIC GATES

Aim: Study of Digital ICs and basic components like power supply, DSO etc.

Summary of the experiment: Study of basic digital ICs and verifying their

functionality, learning the usage of function generator (FG) and digital storage

oscilloscope (DSO), and rigging up of circuits.

Components used: IC 7400,

IC 7408, IC 7432, IC 7486, 1Kohm resistor array -2 , DIP

switches, LED displays, breadboard, power supply.

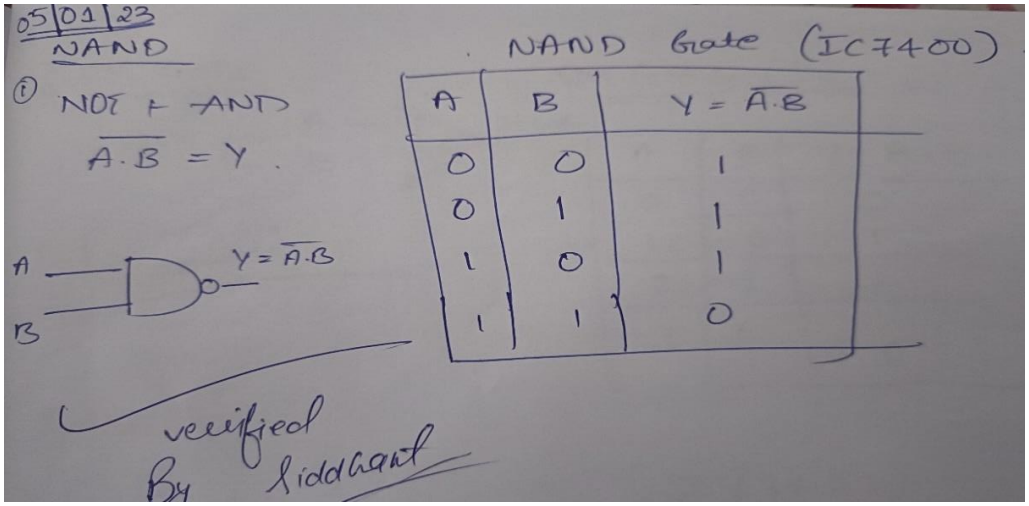
Design Procedure & circuit gates :

Truth table/Excitation table of all logic gates and logic circuits.

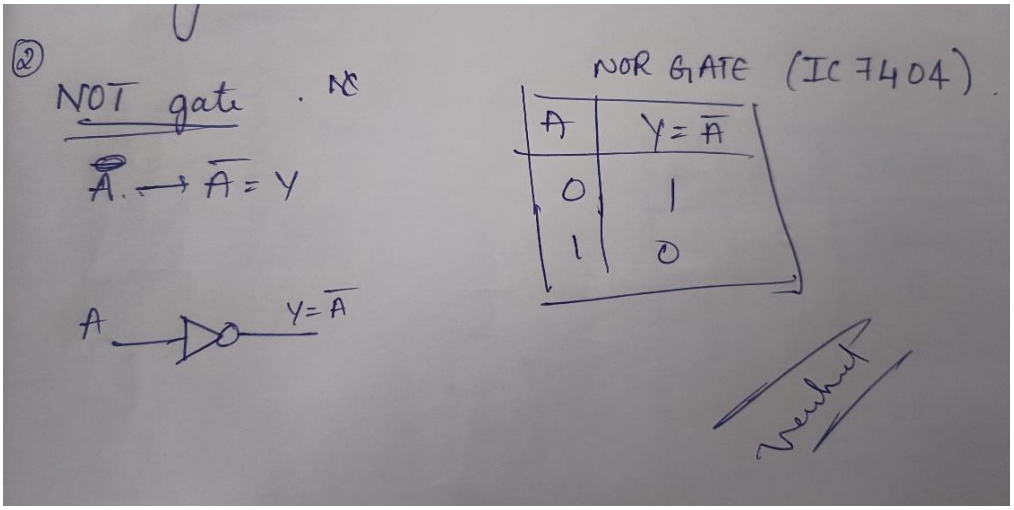
Truth tables are written below for :

1) NAND Gate
2) NOT Gate
3) AND Gate
4) XOR Gate
5) OR Gate .

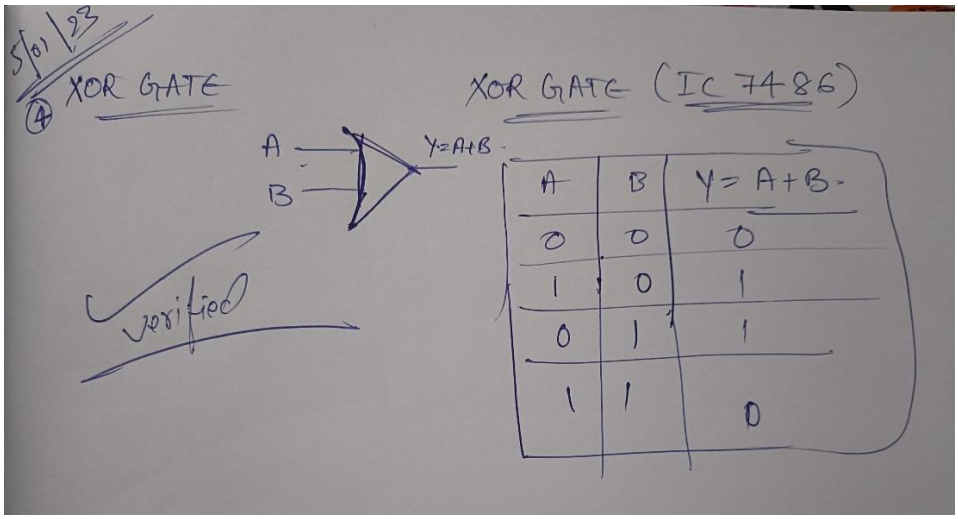
NAND Gate:



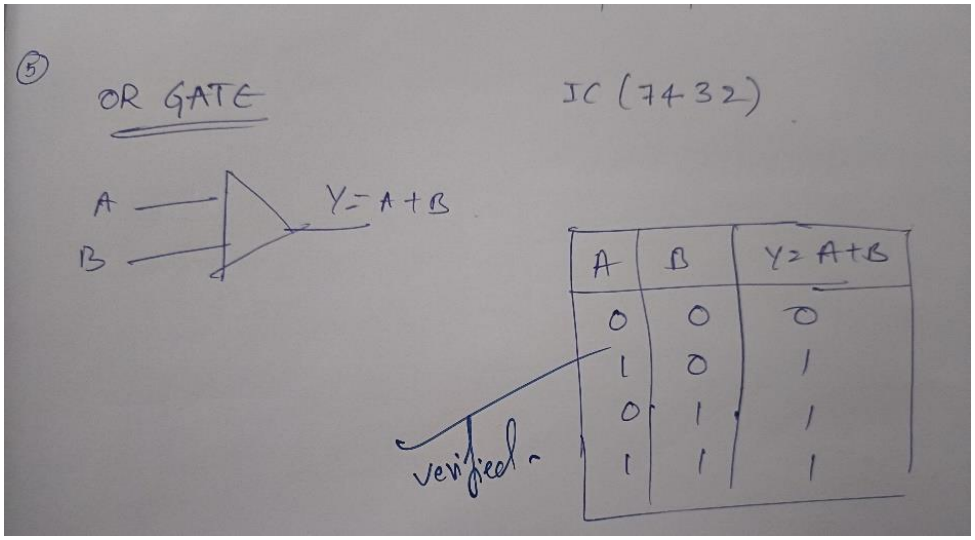
NOT Gate :



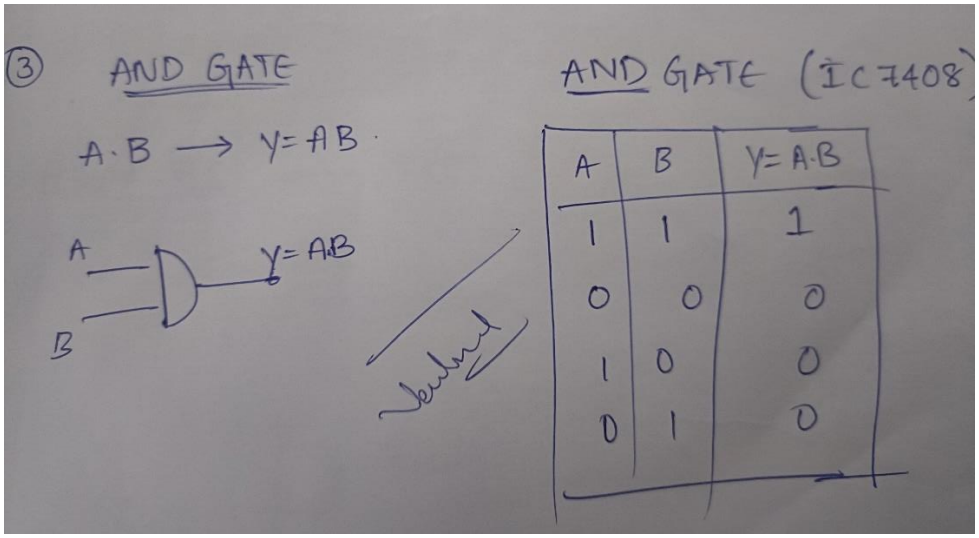
AND Gate :



OR Gate :

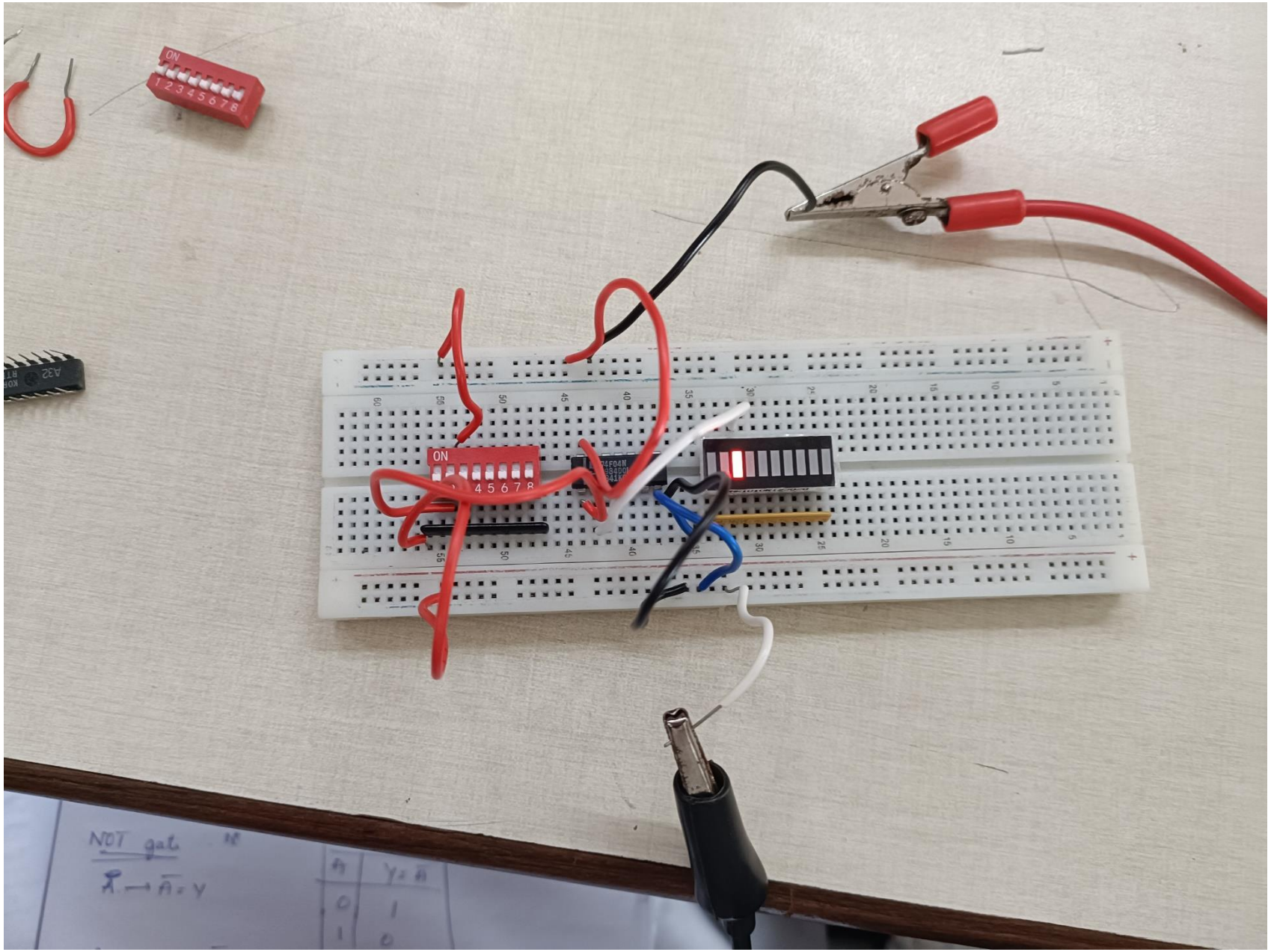


XOR Gate :

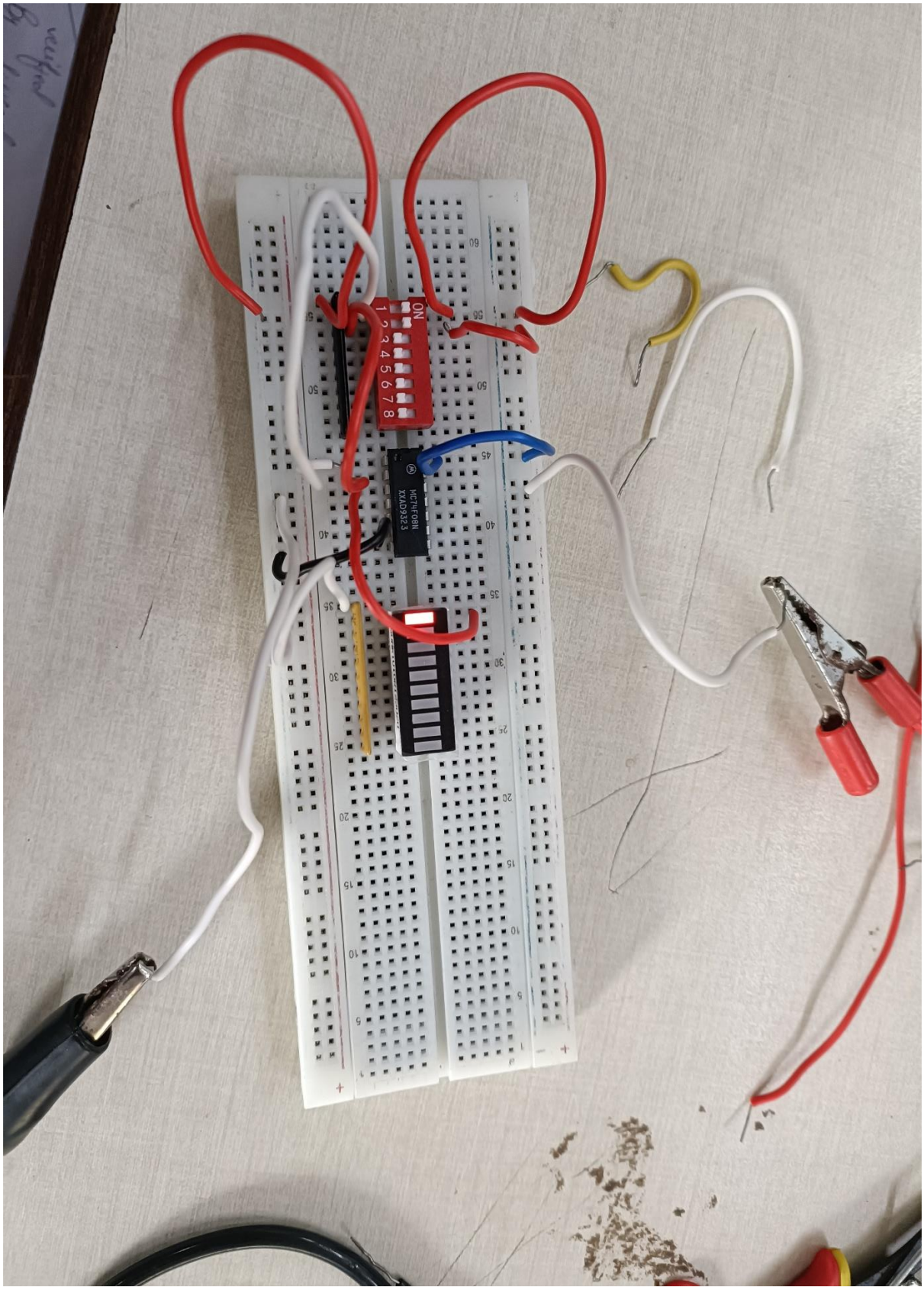


Circuit and Simulation Snapshots:

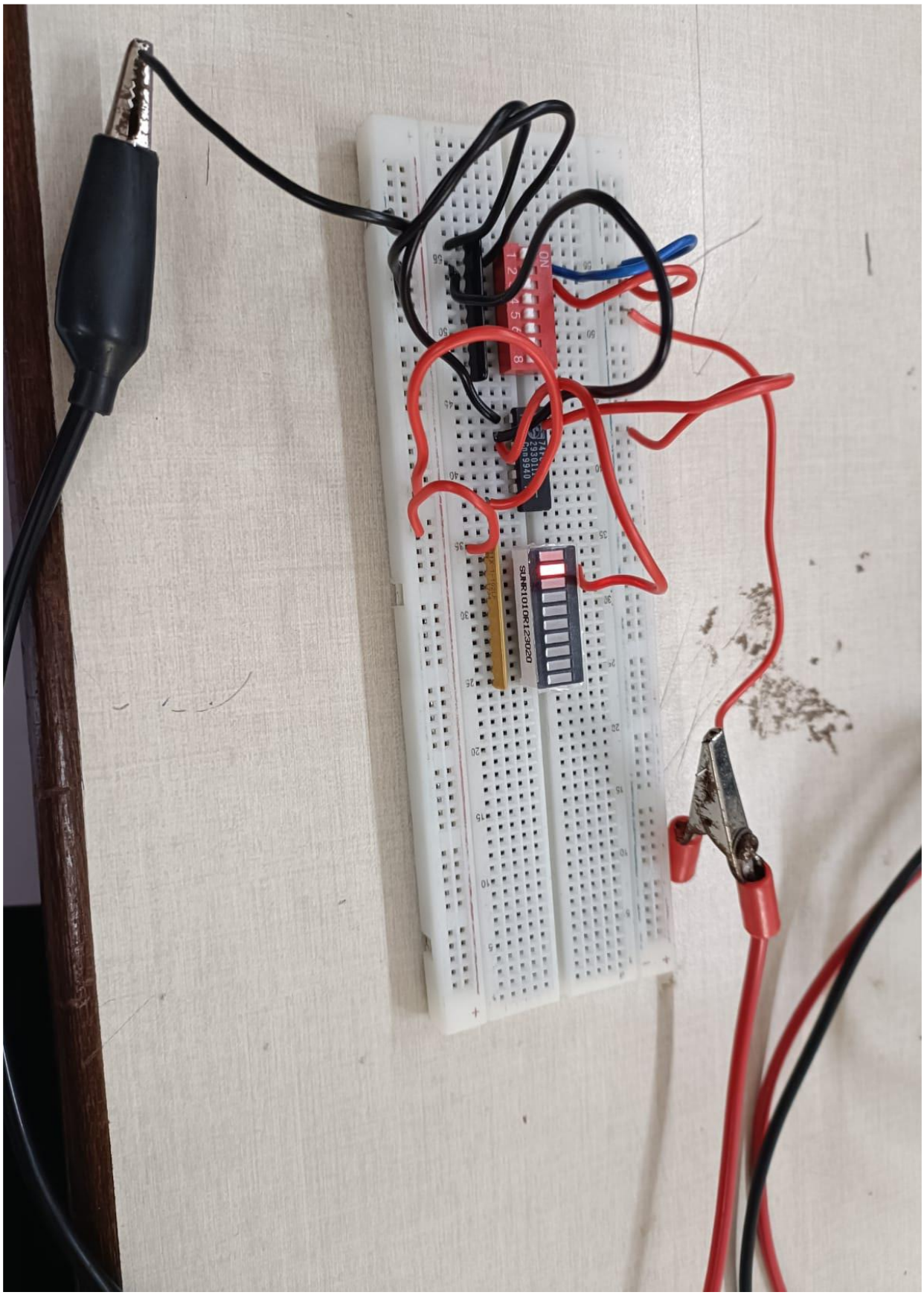
1) IC 7404 – NOT GATE


ON
1 2 3 4 5 6 7 8
NOT gate
A → Ā = Y
A | Y = Ā
0 | 1
1 | 0

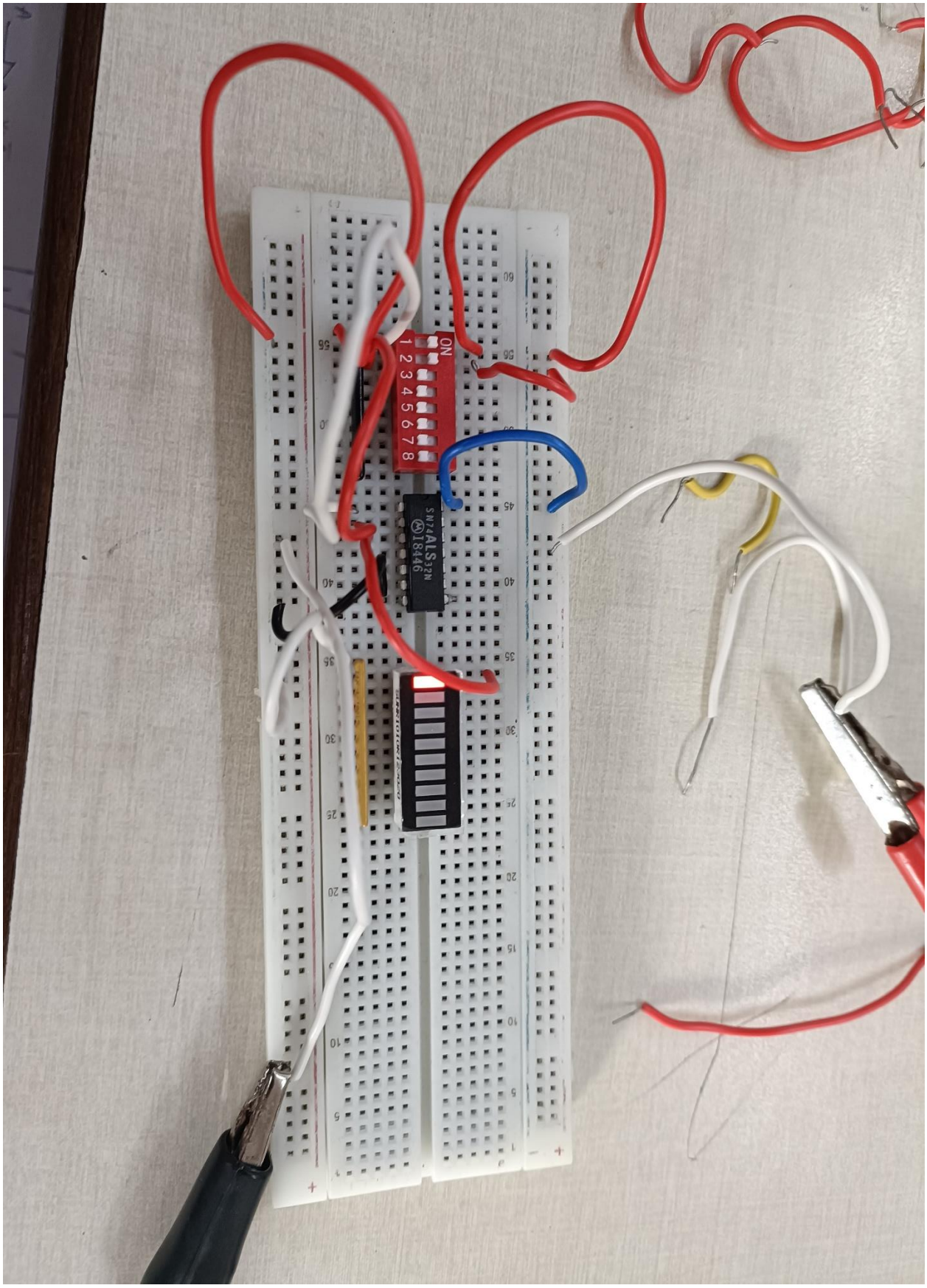
2) IC 7408 – XOR GATE



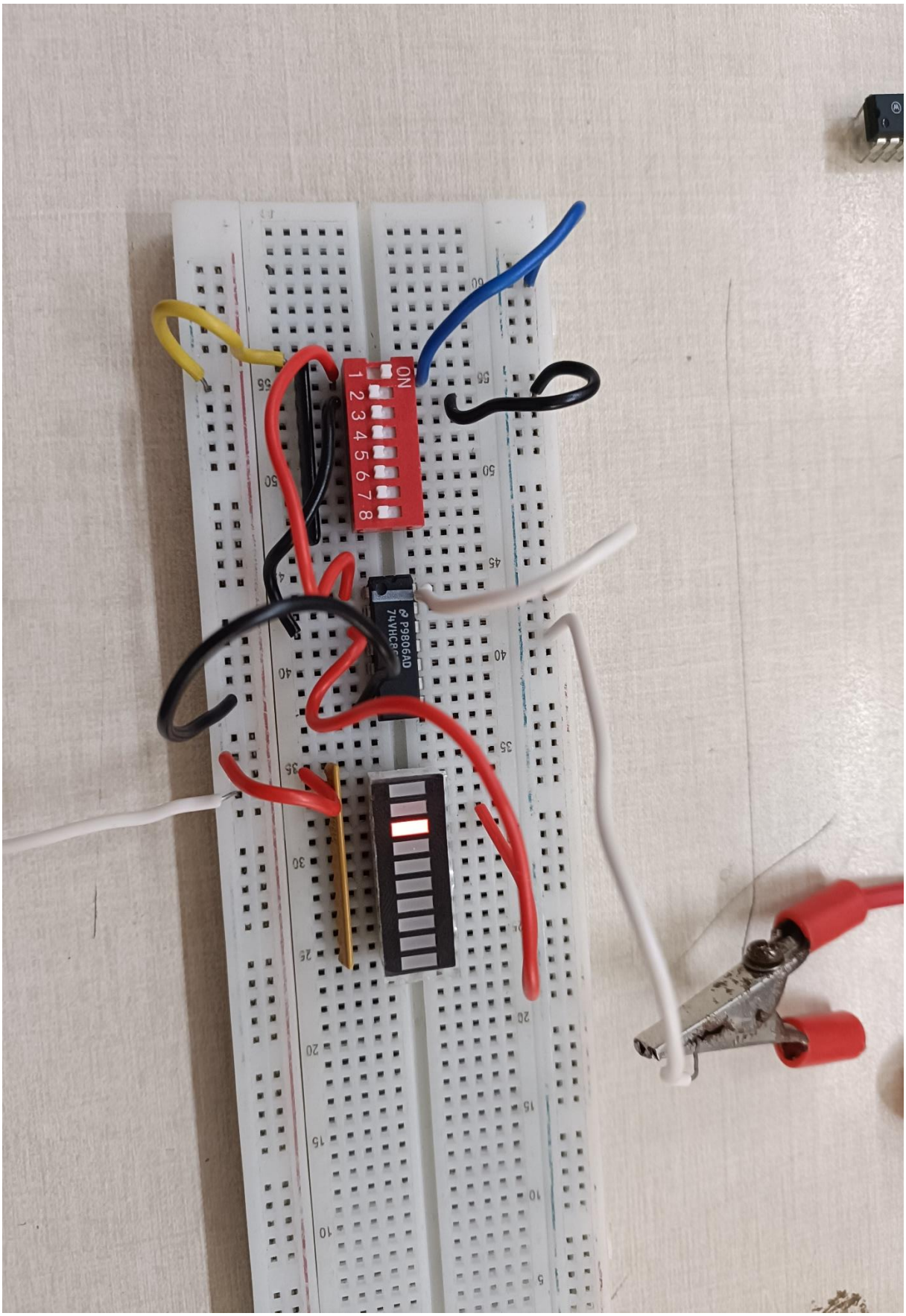
3) IC 7400 – NAND GATE



4) IC 7432 – 0R GATE



5) IC 7486 – AND GATE



RESULTS :

Using these IC's we connected them in a circuit which results to form the different logic gates such as

IC 7400 acts as NAND Gate
IC 7404 acts as NOT Gate
IC 7408 acts as AND Gate
IC 7486 acts as XOR Gate
IC 7432 acts as OR Gate .

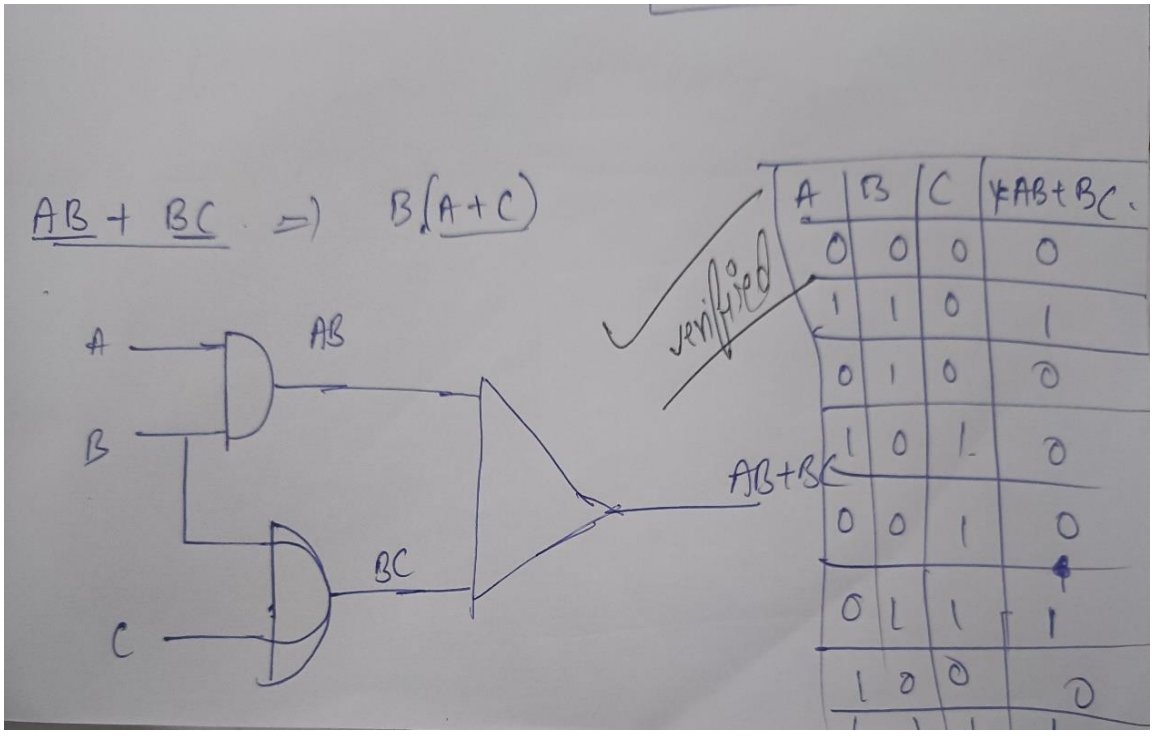
CONCLUSION :

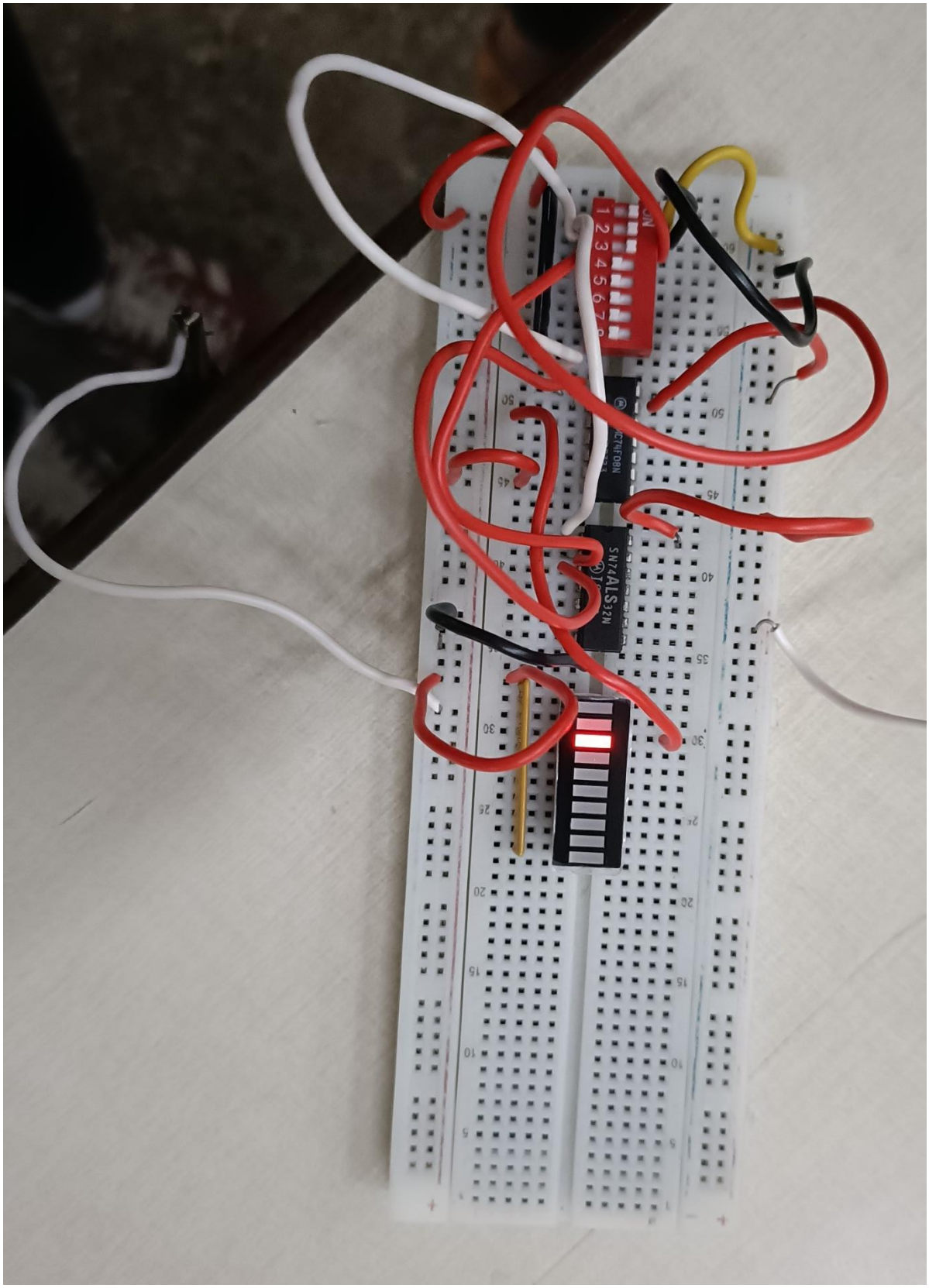
Through these different IC's which are acting as different logic gates which finally gives a conclusion that we can connect any logic gate circuits using these IC's .

The below circuit diagram and logic gate with its truth table are attached, resulting in using two different IC's acts as two different gates .

Given gates as AB + BC

= B(A+C) { We are using two AND gates and a OR gate }



Snapshot of this combination of gates with IC’s :

IC 7408 & IC 7432