

# INDIAN INSTITUTE OF TECHNOLOGY ROORKEE

## DEPARTMENT OF PHYSICS



### LAB MANUAL

# TO VERIFY TRUTH TABLES OF LOGIC GATES

**Aim:** - To Verify truth tables of AND, OR, NOT, NOR, NAND and XOR gates.

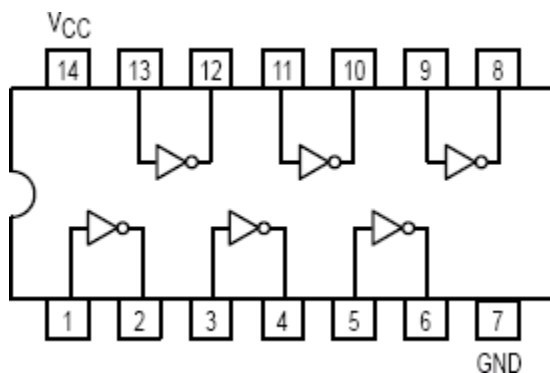
**Apparatus Required:** -

1. All the basic gates mentioned above
2. Breadboard

**Procedure:** -

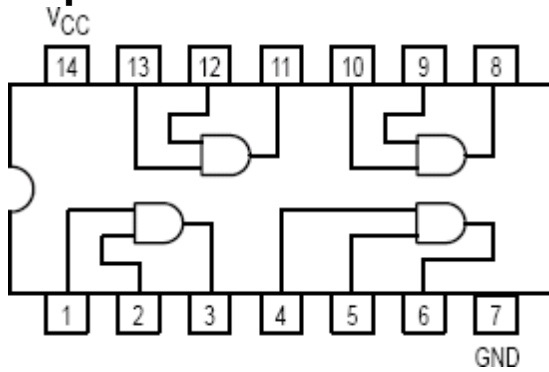
1. Place the IC on the BreadBoard.
2. Connect VCC and ground to respective pins of IC Trainer Kit.
3. Connect the inputs to the input switches provided in the IC TrainerKit.
4. Connect the outputs to the switches of O/P LEDs,
5. Apply various combinations of inputs according to the truth table and observe condition of LEDs.
6. Disconnect output from the LEDs and note down the corresponding multimeter voltage readings for various combinations of inputs.

**Inverter Gate (NOT Gate) 7404**



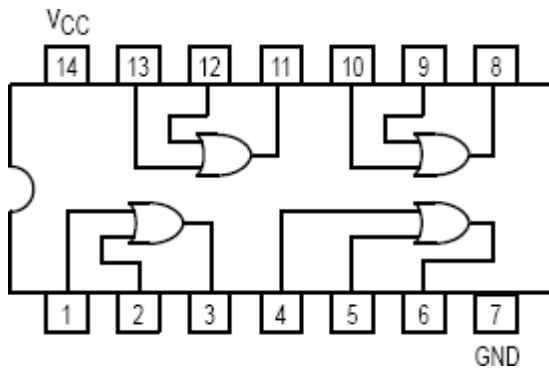
A	O/P
0	1
1	0

## 2-Input AND Gate 7408



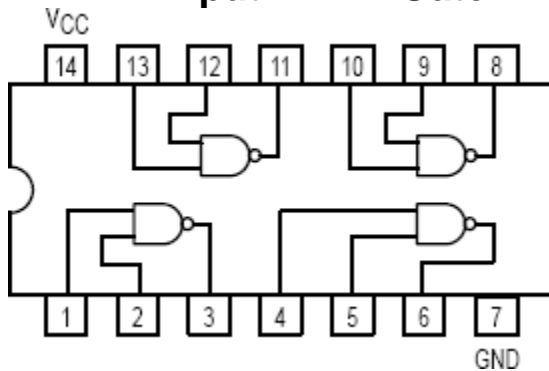
A	B	O/P
0	0	0
0	1	0
1	0	0
1	1	1

## 2-Input OR Gate 7432



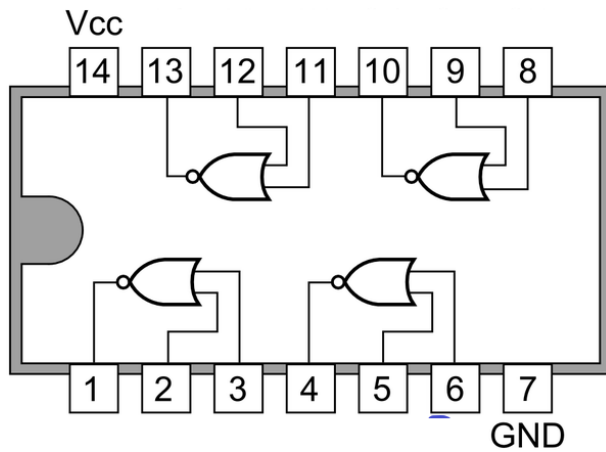
A	B	O/P
0	0	0
0	1	1
1	0	1
1	1	1

## 2-Input NAND Gate 7400



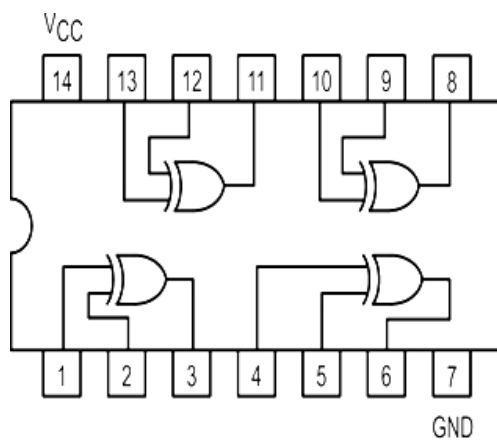
A	B	O/P
0	0	1
0	1	1
1	0	1
1	1	0

## 2-Input NOR Gate 7402



A	B	O/P
0	0	1
0	1	0
1	0	0
1	1	0

## 2-Input XOR Gate 7486



A	B	O/P
0	0	0
0	1	1
1	0	1
1	1	0

## Conclusion:-

Truth table of logic gates are verified.