SHAID SMARAK COLLEGE
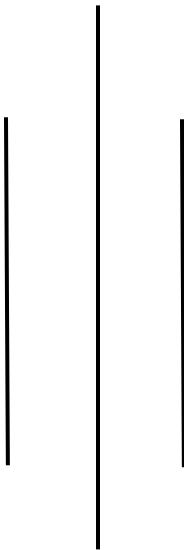
Kirtipur, Kathmandu

Assignment No. 5 of Digital logic

Submitted by :-   **Submitted to :-**

1st semester   Himal Raj Gental

Amir Maharjan

LAB 1 : BEING FAMILIAR WITH BASIC LOGIC GATES

Objective:

- To be familiar with basic logic gates i.e. AND, OR , NOT, XOR, NAND and NOR.
- To see how these gates are fabricated in Integrated Chips.

Equipment Needed:

a) Breadboard
b) 9V Battery
c) LED Bulbs
d) 5v Registers
e) Jumper Wires
f) Toggle Switches
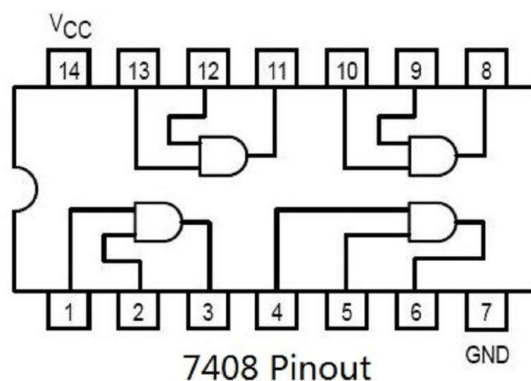g) IC Names for corresponding gates
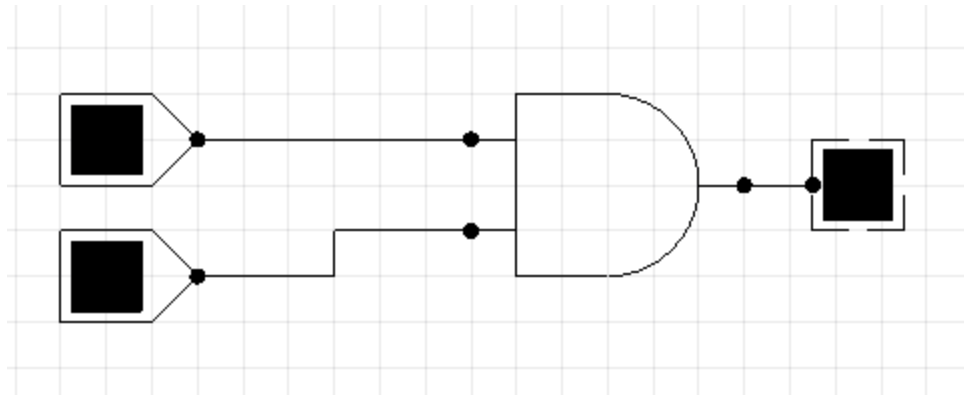
Discussion:

a) AND Gate

Fig: IC7408 (AND gate)

Fig: Circuit Diagram for AND gate

A	B	A.B
0	0	0
0	1	0
1	0	0
1	1	1

Fig: Observed result of AND gate

b) OR Gate
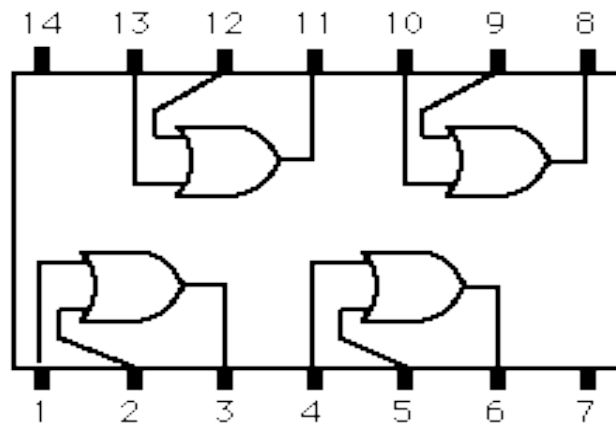
Fig: IC7432 (OR Gate)
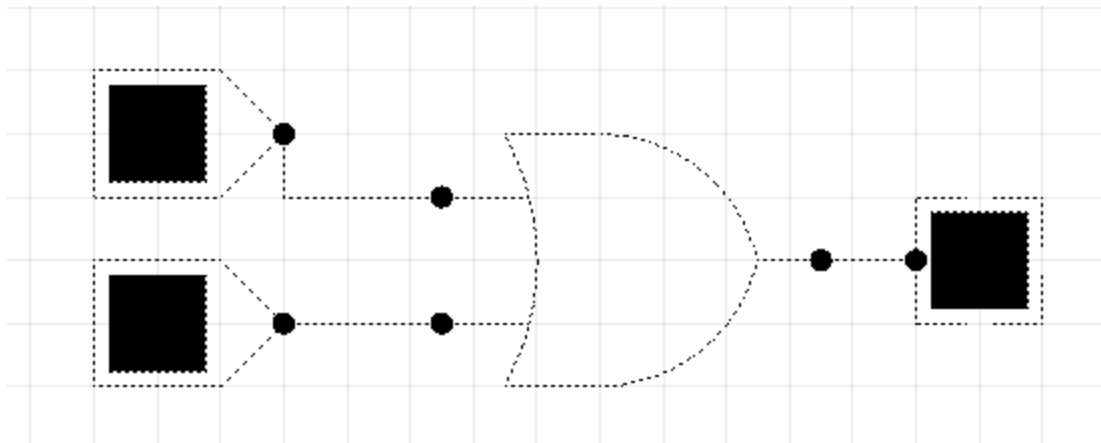
Fig: Circuit Diagram of OR Gate

A	B	X (A+B)
0	0	0
0	1	1
1	0	1
1	1	1

Truth table of OR Gate

c) NOT Gate
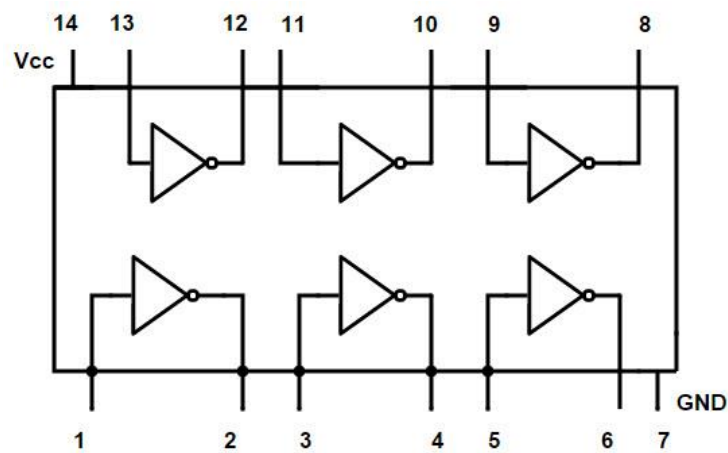
Fig: IC7404 (NOT Gate)
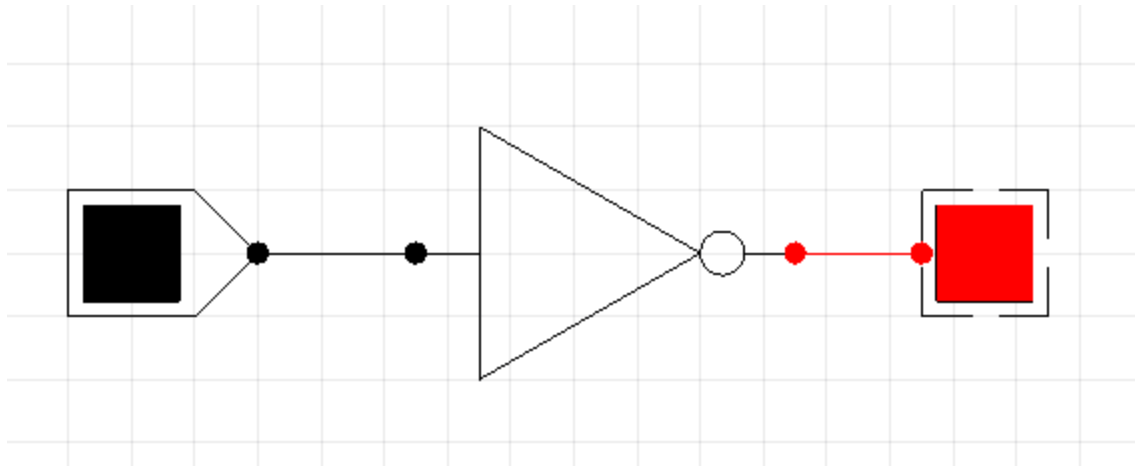
Fig: Circuit Diagram of NOT Gate

A	X
0	1
1	0

Fig: Truth Table of NOT Gate

D) NAND Gate
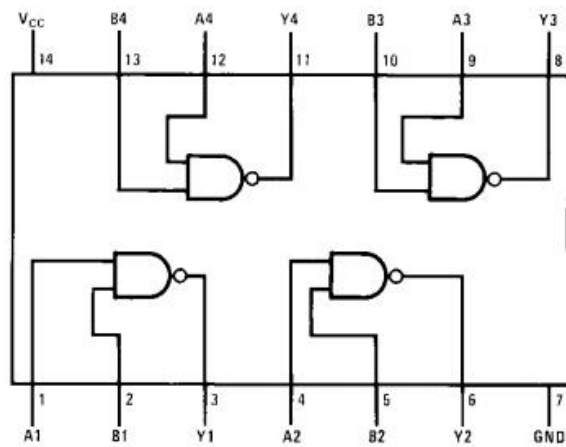
Fig: IC7400 (NAND Gate)
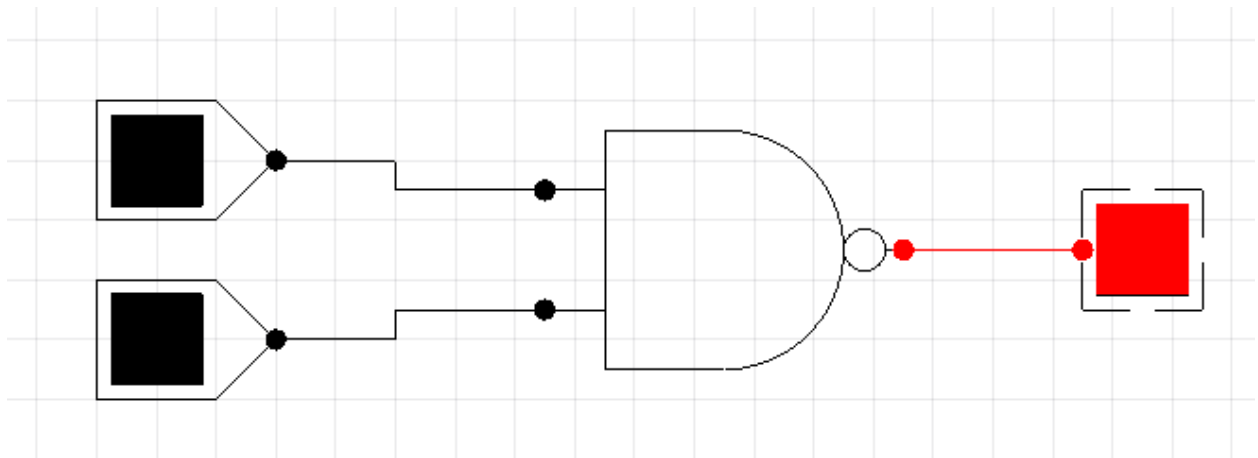
Fig: Circuit Diagram for NAND Gate

A	B	X
0	0	1
0	1	1
1	0	1
1	1	0

Fig: Truth Table of NAND Gate

e) NOR Gate
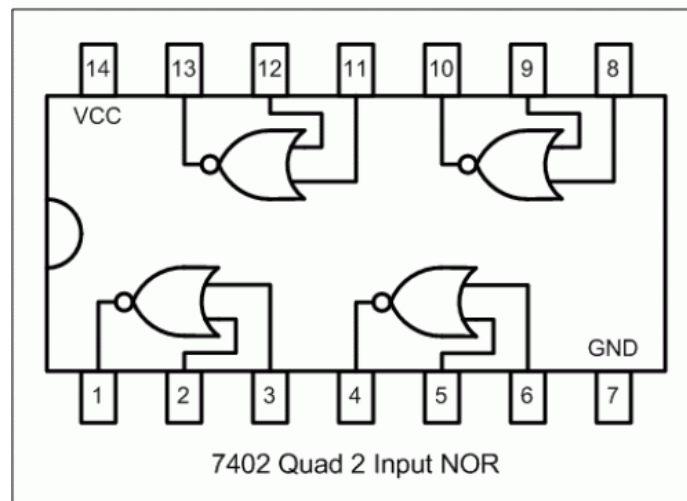
Fig: IC7402 (NOR Gate)
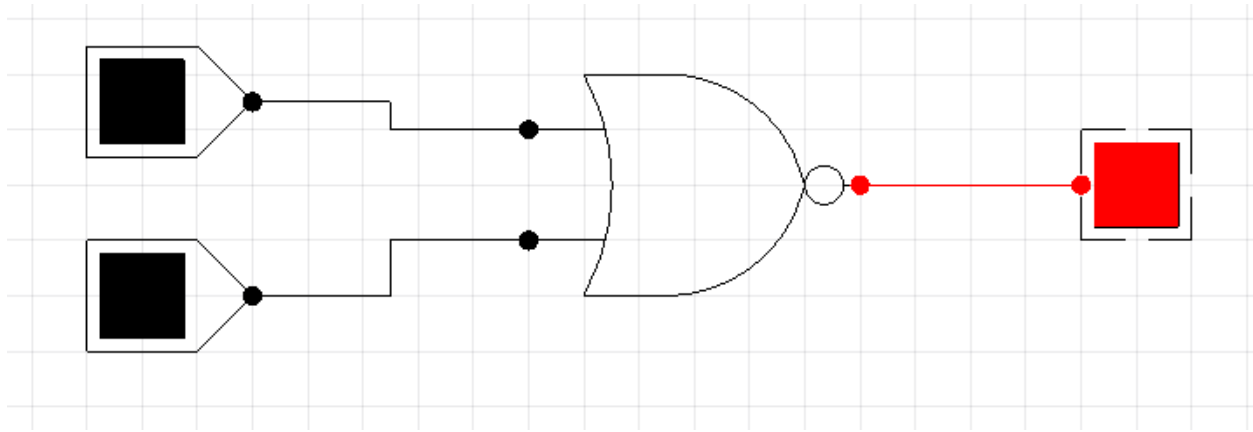
Fig: Circuit Diagram of NOR Gate

A	B	X
0	0	1
0	1	0
1	0	0
1	1	0

Fig: Truth table of NOR gate

F) XOR Gate
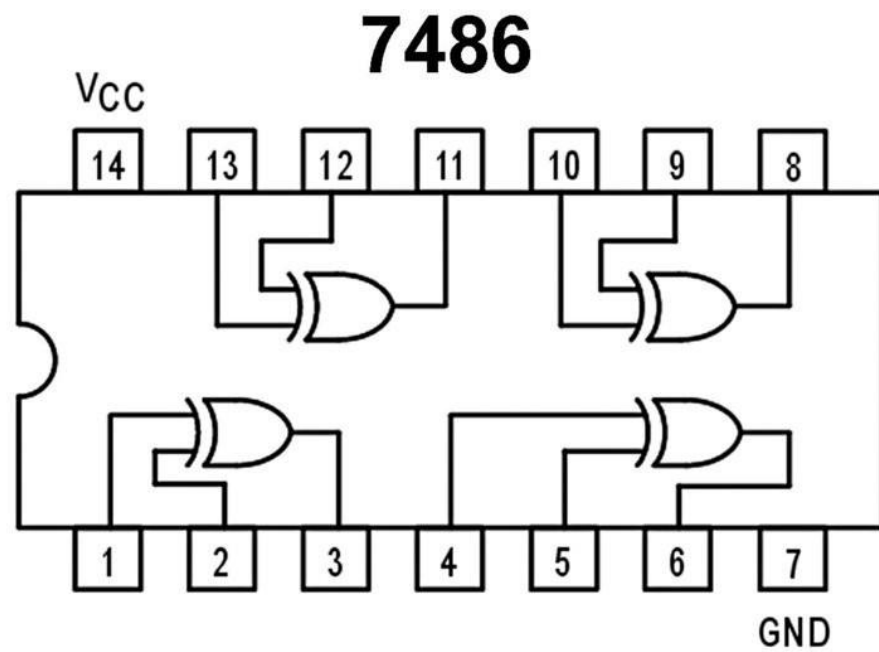
Fig: IC7486 (XOR gate)
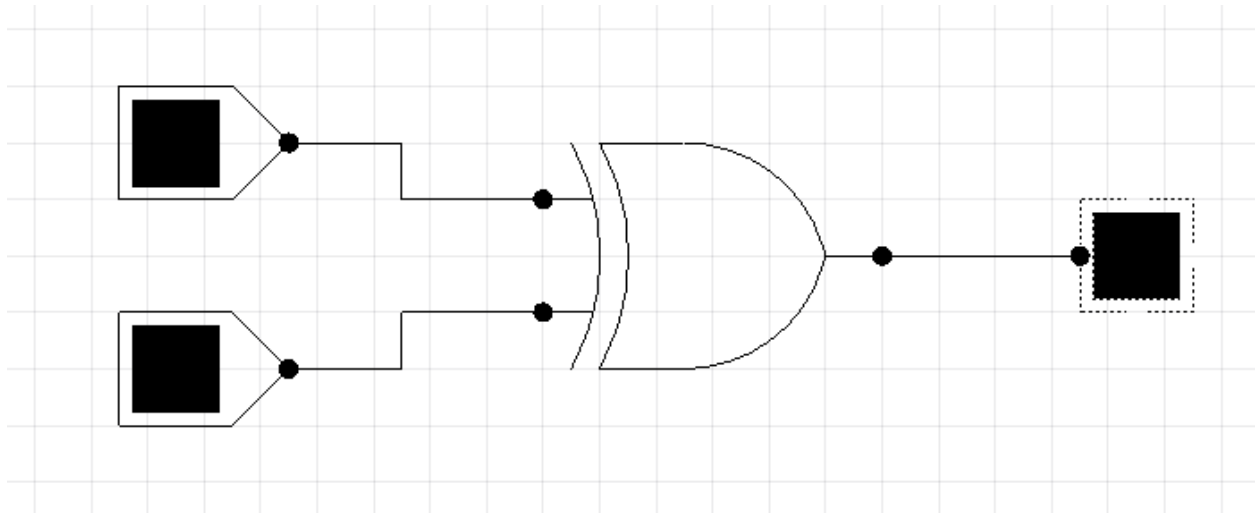
Fig: Circuit Diagram of XOR gate

A	B	X
0	0	0
0	1	1
1	0	1
1	1	0

Fig: Truth Table of XOR gate