Department of Computer Science and Engineering
BRAC University
CSE 260: Digital Logic Design

Experiment # 1: Familiarization with *Fundamental Logic Gates*

Objective:

- To get familiarized with fundamental logic gates and demonstrate the input-output relationship of 2-input **AND** (IC – 7408)**, OR** (IC – 7432**) and NOT/Inverter** (IC – 7404) gates by constructing their truth tables.
- To get familiar with other logic gates like **NAND** (IC – 7400)**, NOR** (IC – 7402), **XOR** (IC – 7486**)** and **XNOR** (IC – 4077)

Required Components:

1. IC 7408 × 1
2. IC 7432 x 1
3. IC 7404 × 1
4. IC 7400 x 1
5. IC 7402 × 1
6. IC 7486 x 1
7. IC 4077 x 1

Procedure:

- For each of the ICs, place the IC correctly on the trainer board
- Remember to connect each IC's VCC pin to the "+5V" position of the DC Power Supply of the trainer board, and the GND or 0V pin to the "GND" position of the trainer board.
- Connect the inputs to the data switches and the output to any position on the LED display.
- Find out the outputs for all possible combinations of input states.
- Write down the input-output in tabular form.

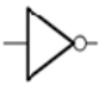
Report:

Your report must have the following segments:

1. Name of the Experiment.
2. Objective.
3. Required Components.
4. Experimental Setup - Draw the pin diagrams of each IC.
5. Results - Truth Table of each IC.
6. Discussions.

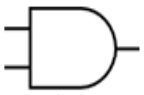
Logic gate symbols with corresponding truth tables:

NOT



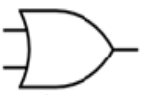
INPUT	OUTPUT
A	
0	1
1	0

AND



INPUT		OUTPUT
A	B	
0	0	0
1	0	0
0	1	0
1	1	1

OR

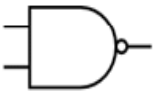


INPUT		OUTPUT
A	B	
0	0	0
1	0	1
0	1	1
1	1	1

XOR

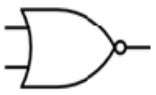
INPUT		OUTPUT
A	B	
0	0	0
1	0	1
0	1	1
1	1	0

NAND



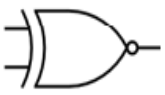
INPUT		OUTPUT
A	B	
0	0	1
1	0	1
0	1	1
1	1	0

NOR



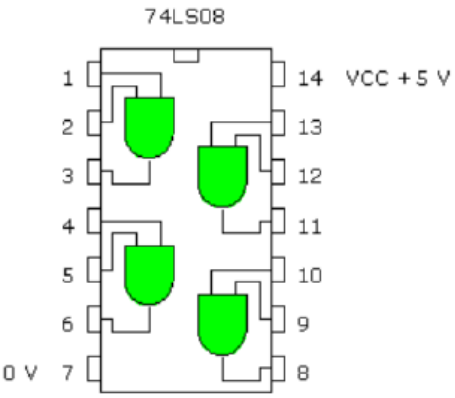
INPUT		OUTPUT
A	B	
0	0	1
1	0	0
0	1	0
1	1	0

XNOR

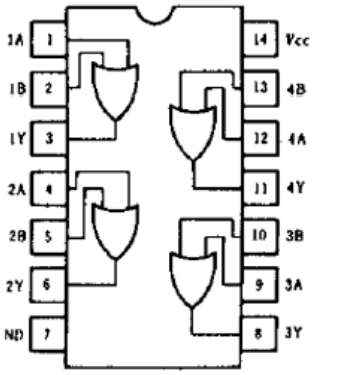


INPUT		OUTPUT
A	B	
0	0	1
1	0	0
0	1	0
1	1	1

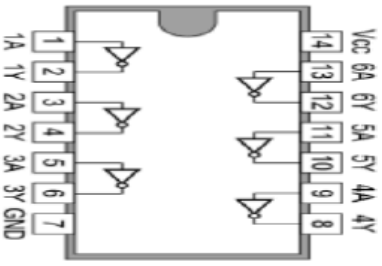
Pin Diagrams of ICs:



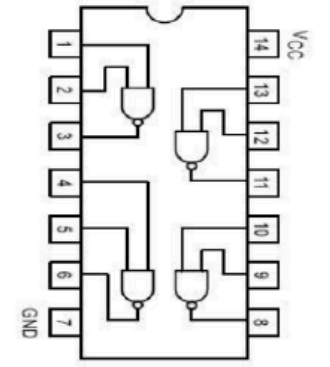
Pin layout of 7408



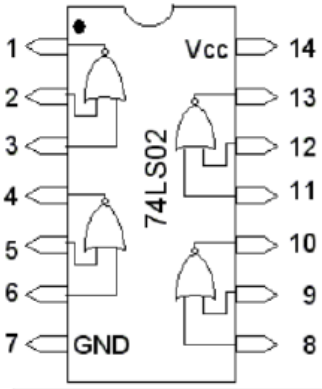
Pin layout of 7432



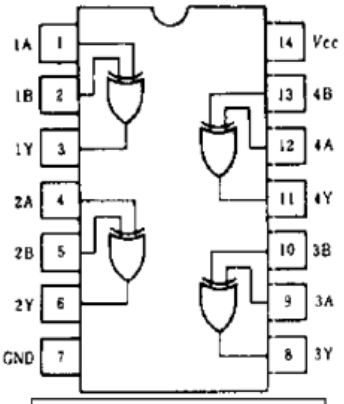
Pin layout of 7404



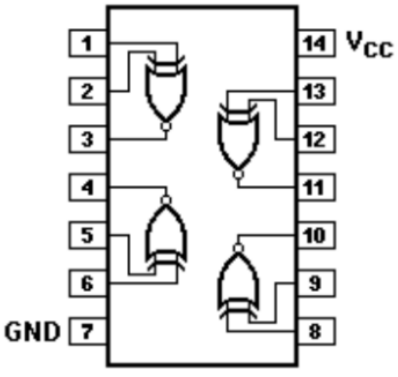
Pin layout of 7400



Pin Layout of 7402



Pin layout of 7486



Pin layout of 4077