CSE260 Lab Report

Experiment Name:-

Familiarization of Fundamental Logic Gates

Submitted by

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Section : 10

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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 (IC-7404) gates by constructing their truth tables.

- To get familiarized with other logic gates like NAND(IC-7400), NOR(IC-7402), XOR(IC-7486) and XNOR(IC-74266).

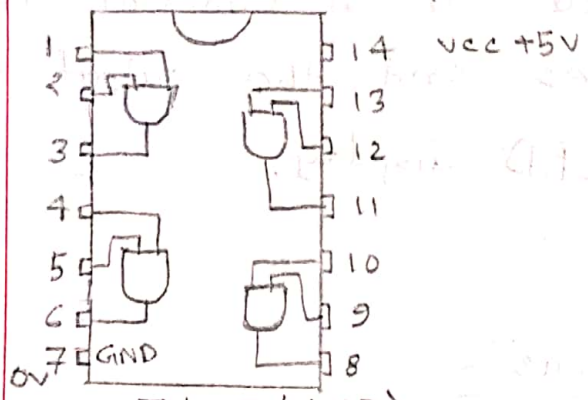
Required Components and Equipments:-

Breadboard, wires, power, volt meter, various ICs, etc.

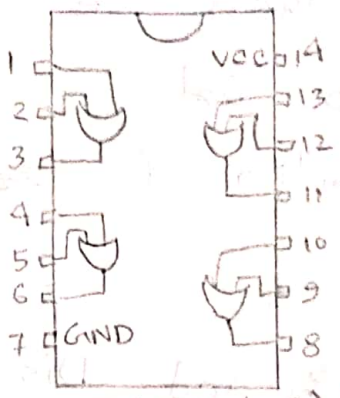
Experimental setup:-

For conducting this experiment, we will need several ICs as follows - 7400, 7402 7404, 7408, 7432, 7486, 74266. Their

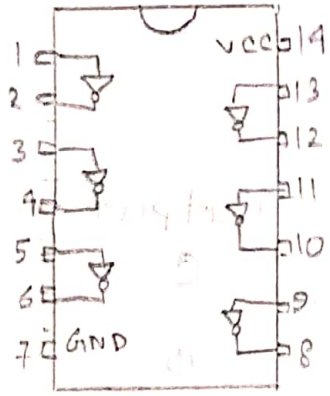
pin layouts are given below.



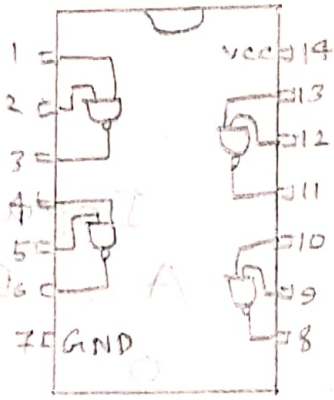
7408 (AND)



7432 (OR)

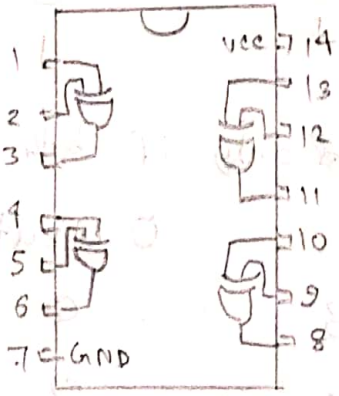


7404 (NOT)

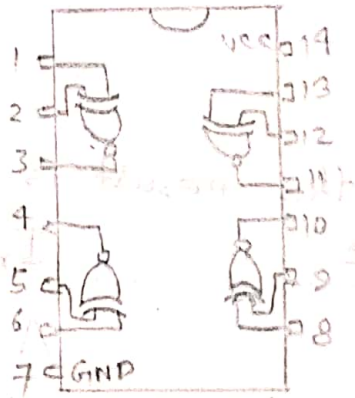


7400 (NAND)

7402 (NOR)



7486 (XOR)



74266 (XNOR)

Here, we need to place the ICs on the trainer board. Then, connect pin 14 to +5 V

position of DC power supply and pin 7 to GND position. Then we need to connect the inputs to Data switches and the output to any position of the LED display.

Results and Discussions :-

The truth tables of the gates are as following :-

AND gate :-

Input		Output
A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

Here, the result is True only if both inputs are True

OR gate :-

Input		Output
A	B	C
0	0	0
0	1	1
1	0	1
1	1	1

Here, the result is True if at least 1 input is True.

NOT gate:-

Input	Output
A	B
0	1
1	0

Here, the output is the inverse of input.

NAND gate:-

Input		Output
A	B	C
0	0	1
0	1	1
1	0	1
1	1	0

Here, the gate is the combination of AND and NOT gate. The output is FALSE only if both the inputs are TRUE.

NOR gate:-

Input		Output
A	B	C
0	0	1
0	1	0
1	0	0
1	1	0

Here, the gate is the combination of OR and NOT gates. The output is TRUE only if both the inputs are FALSE.

XOR gate:-

Input		Output
A	B	C
0	0	0
0	1	1
1	0	1
1	1	0

Here, the output is only TRUE when the inputs are opposite.

XNOR gate:-

Input		Output
A	B	C
0	0	1
0	1	0
1	0	0
1	1	1

Here, the output is TRUE only when both the inputs are same.