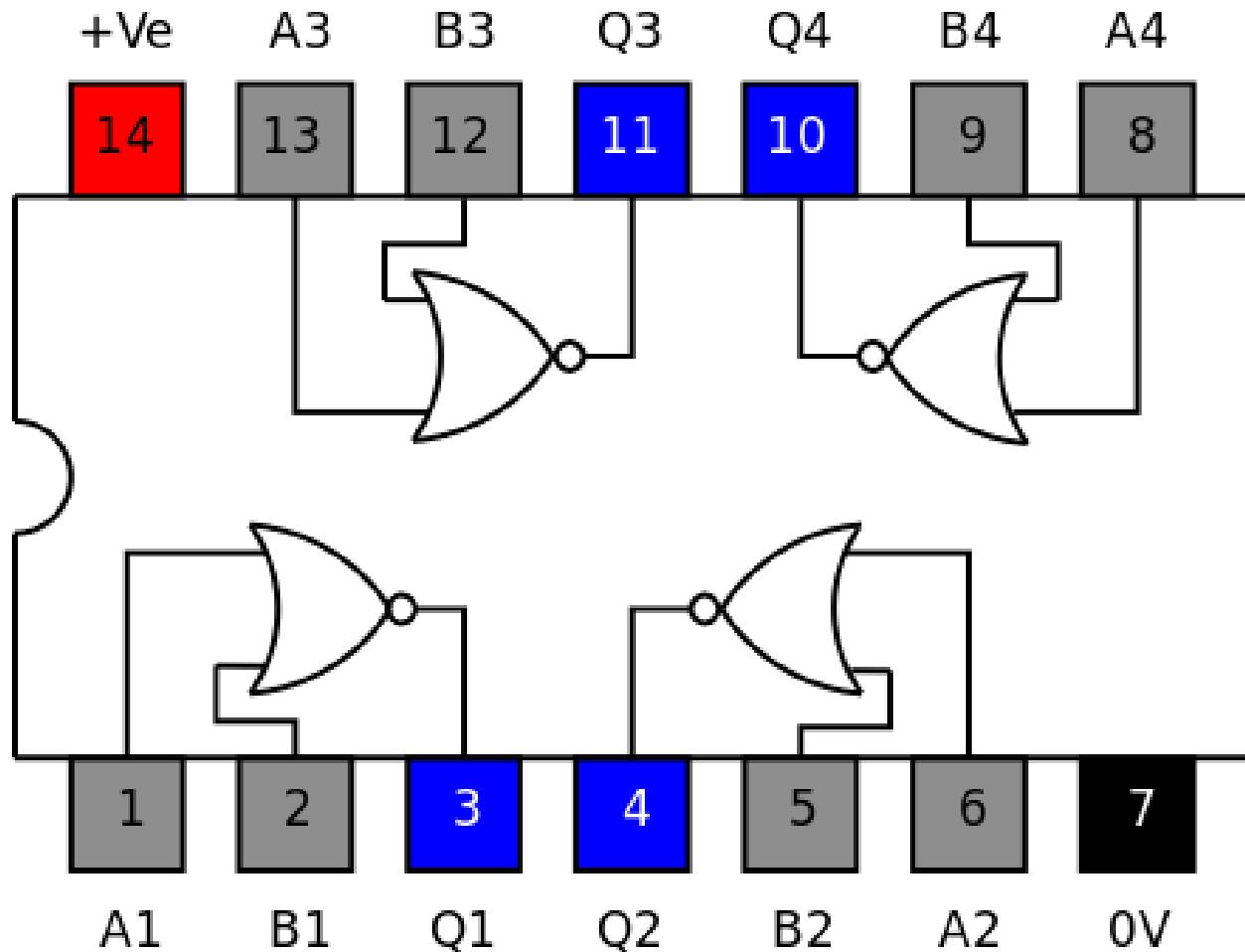
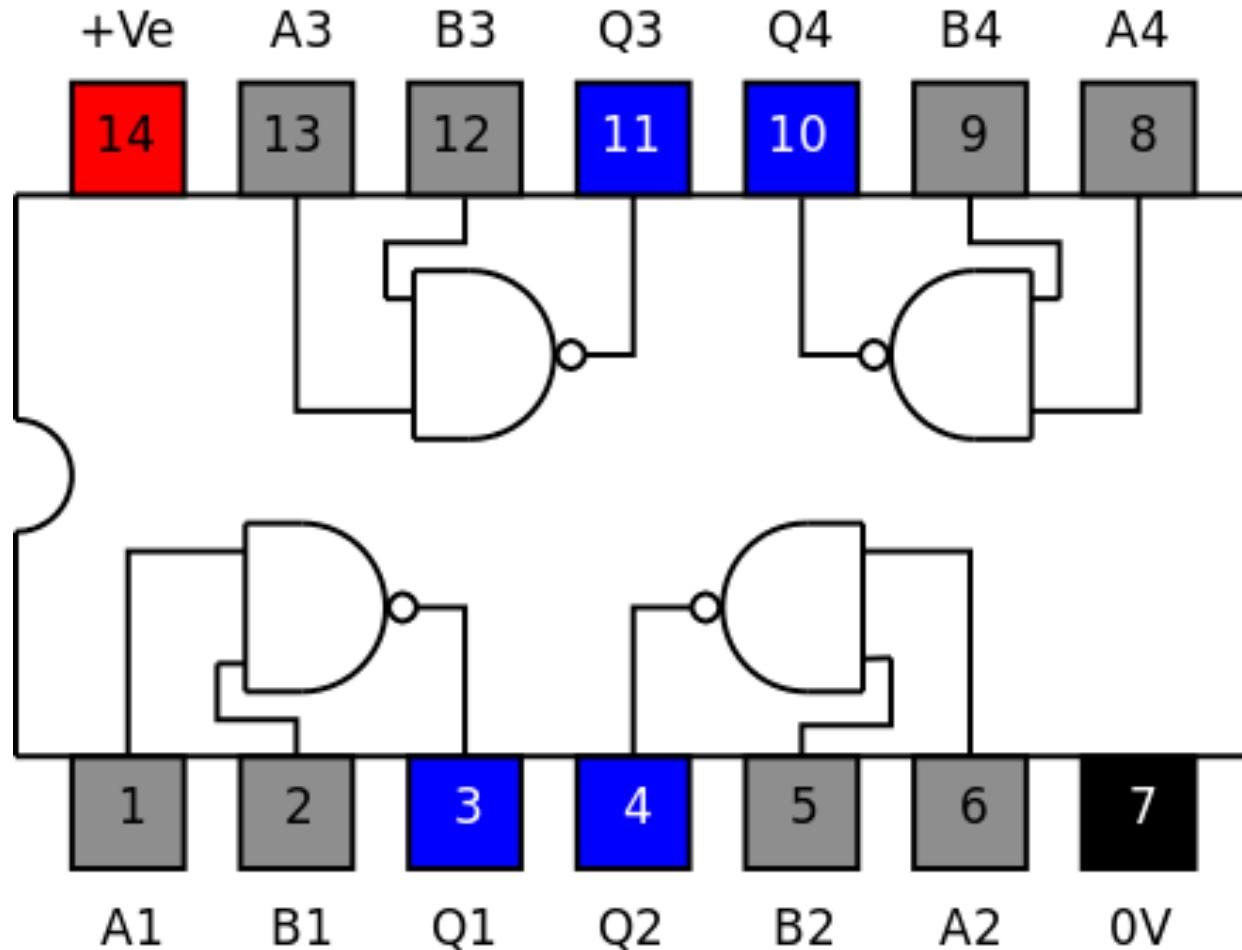


IC Details

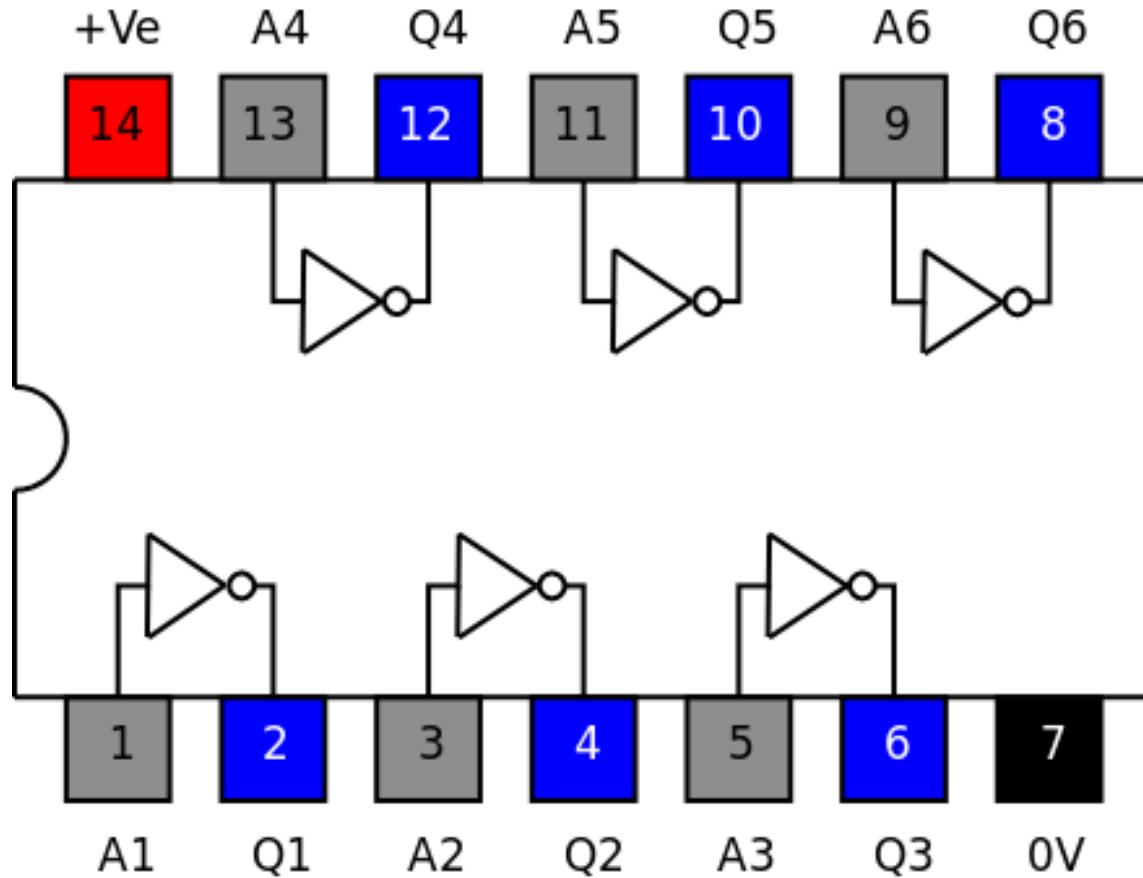
- IC 4001 – 2 input NOR
- IC 4011 – 2 input NAND
- IC 4069 – 2 input NOT
- IC 4071 – 2 input OR
- IC 4081 – 2 input AND
- IC 4070 – 2 input XOR



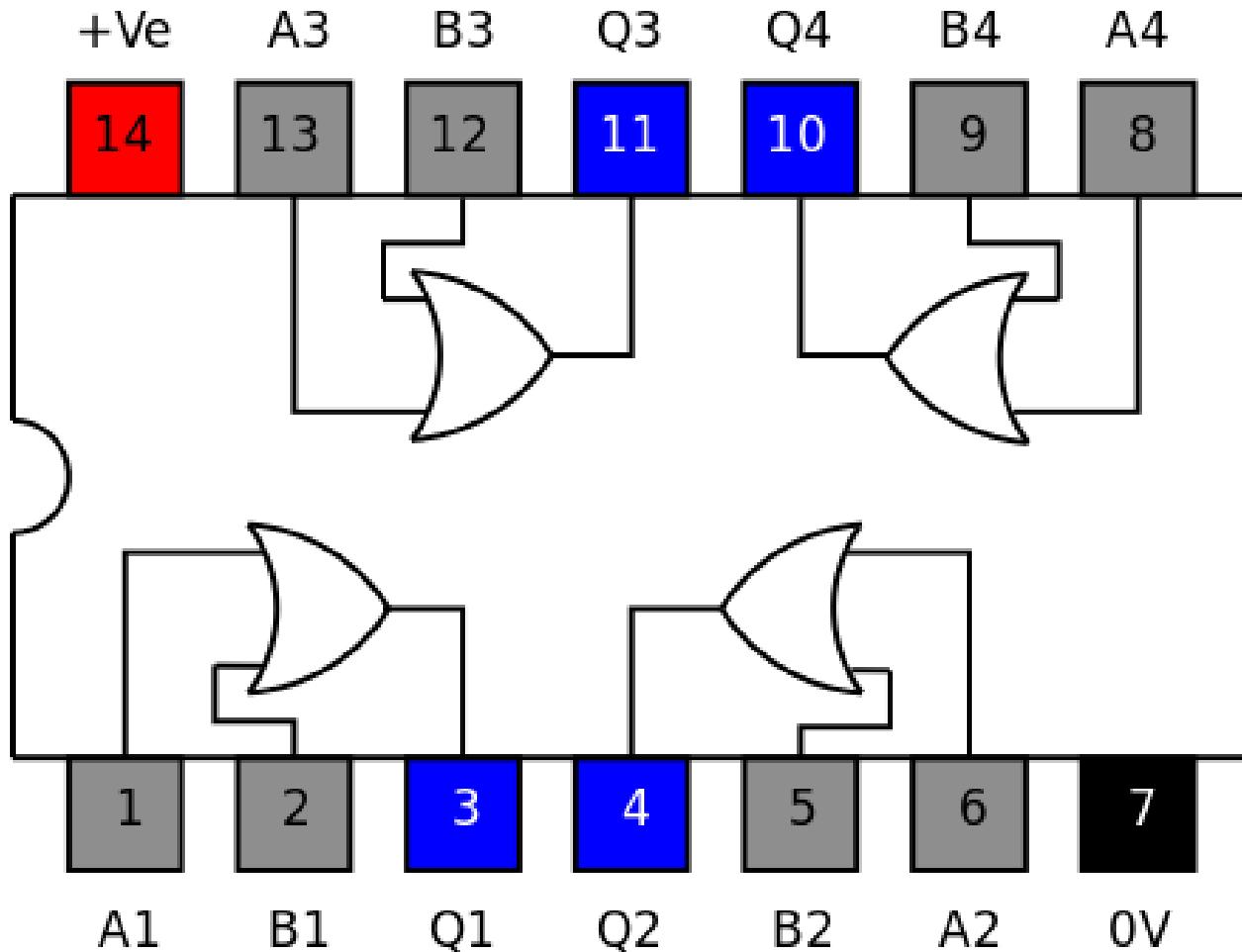
IC 4001 – 2 input NOR



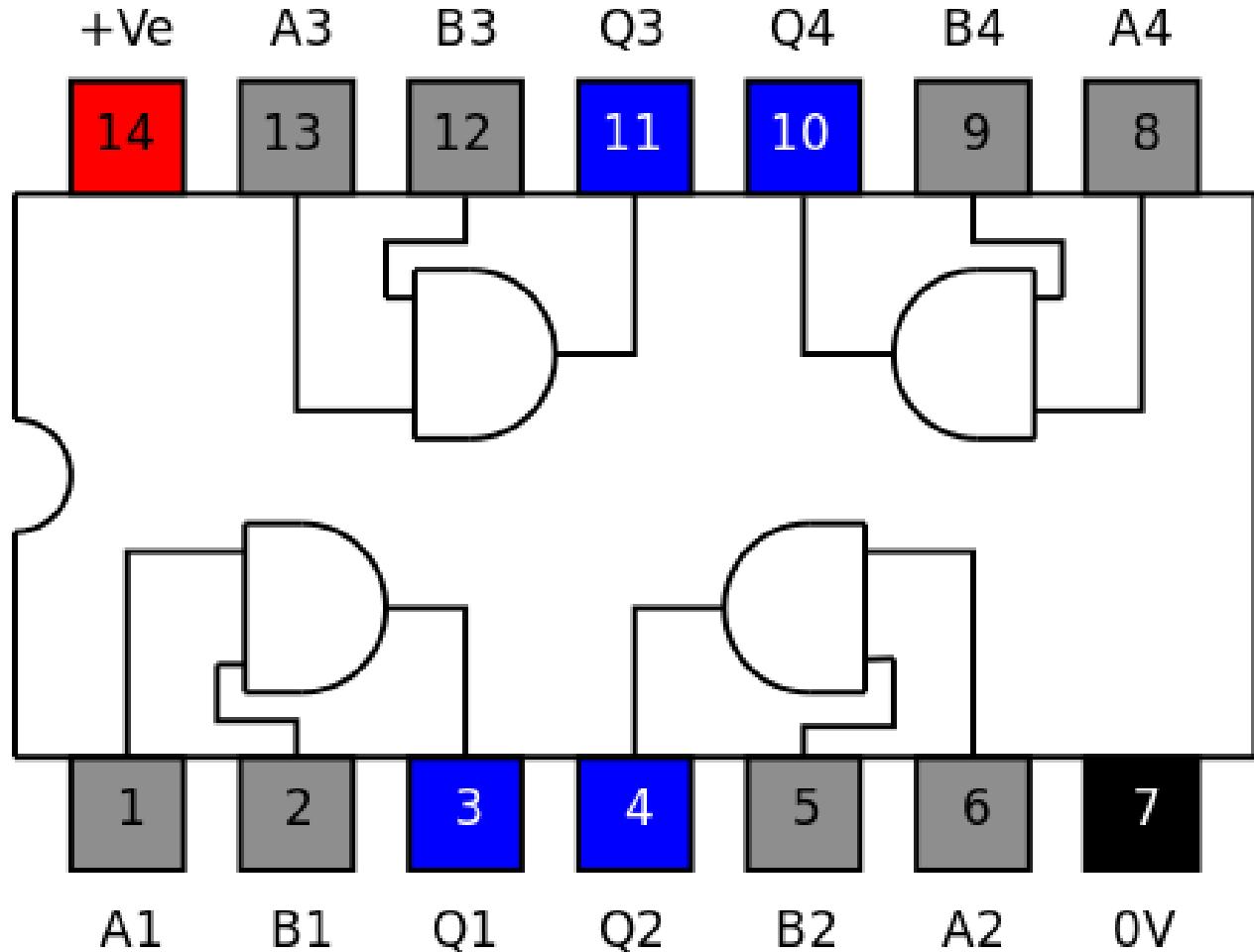
IC 4011 – 2 input NAND



IC 4069 – 2 input NOT

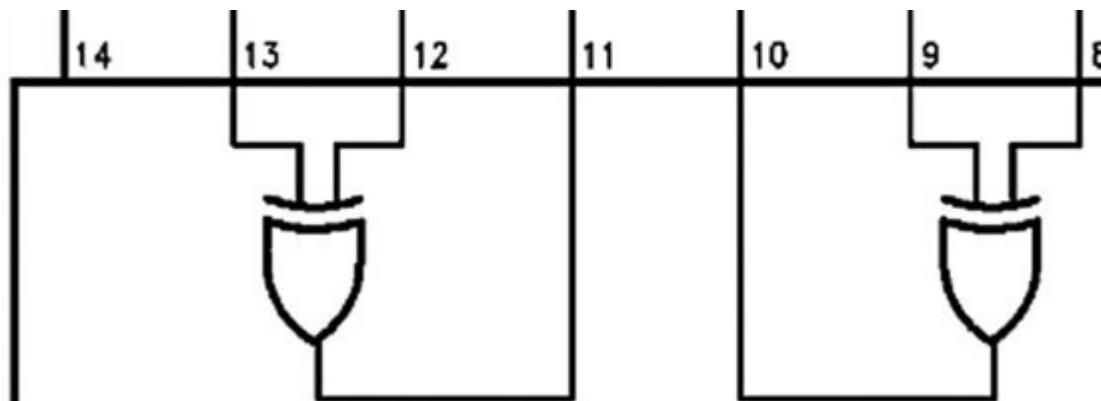


IC 4071 – 2 input OR

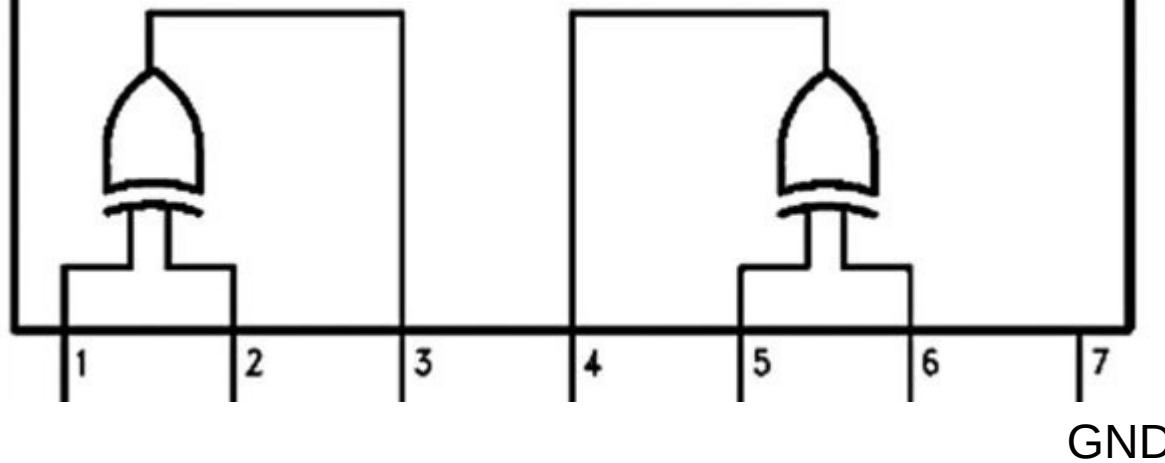


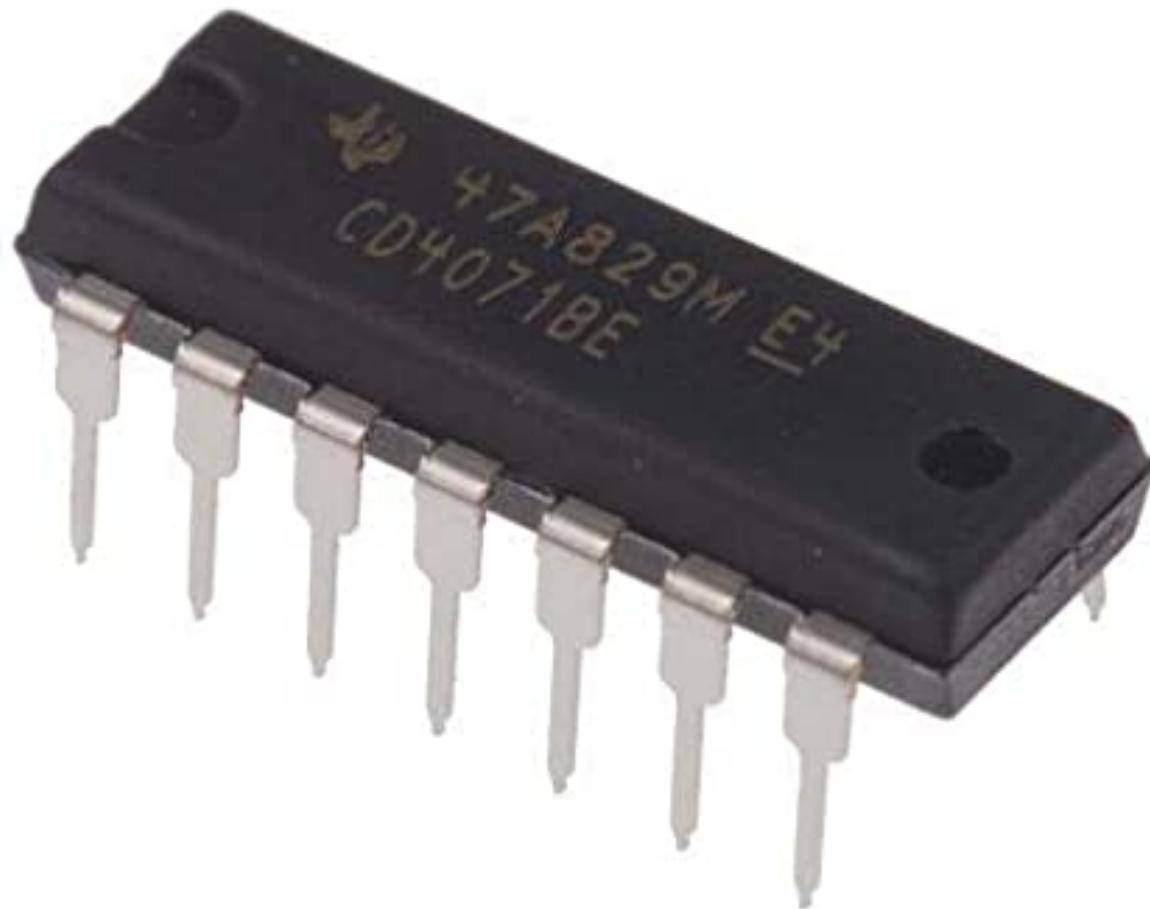
IC 4081 – 2 input AND

Vcc



IC 4070 – 2 input XOR







MICROLAB-IV

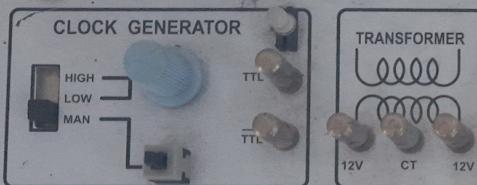
UNIVERSAL ELECTRONICS TRAINER



LOGIC DATA

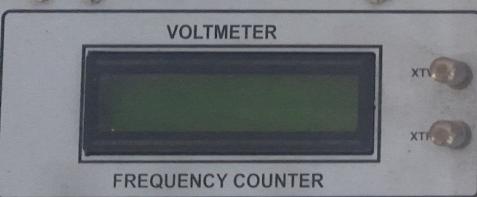


LOGIC PROBES



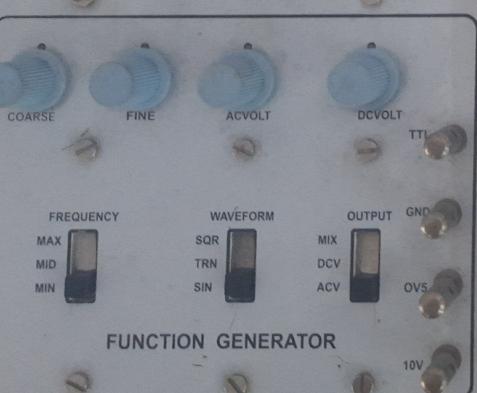
CLOCK GENERATOR

TRANSFORMER

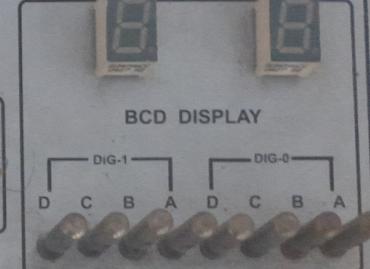
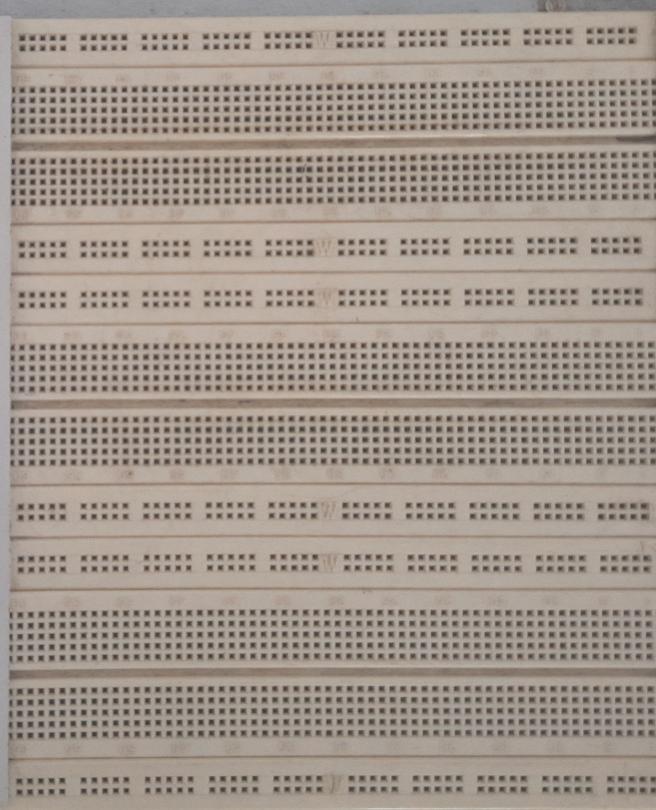


VOLTMETER

FREQUENCY COUNTER

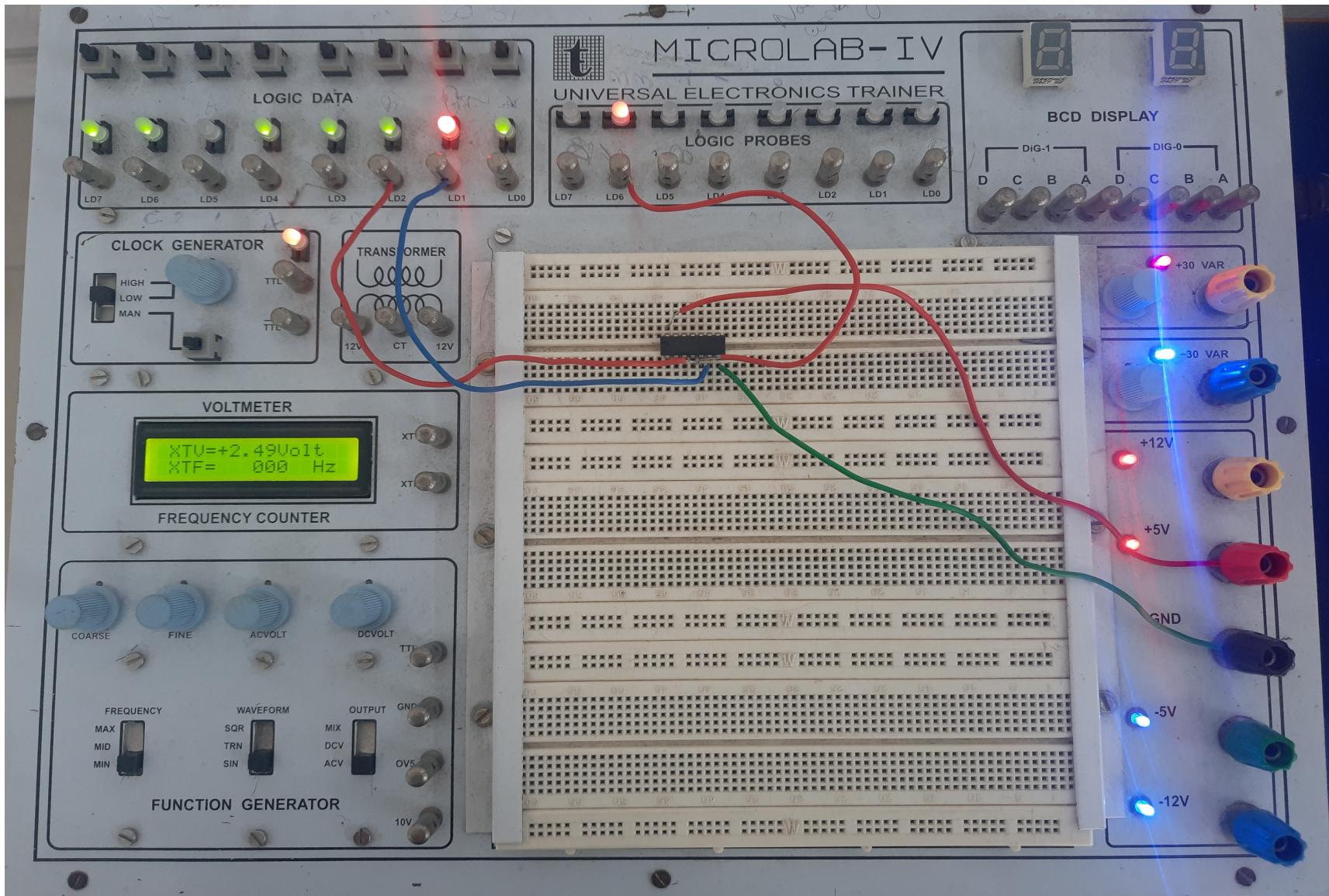


FUNCTION GENERATOR



BCD DISPLAY





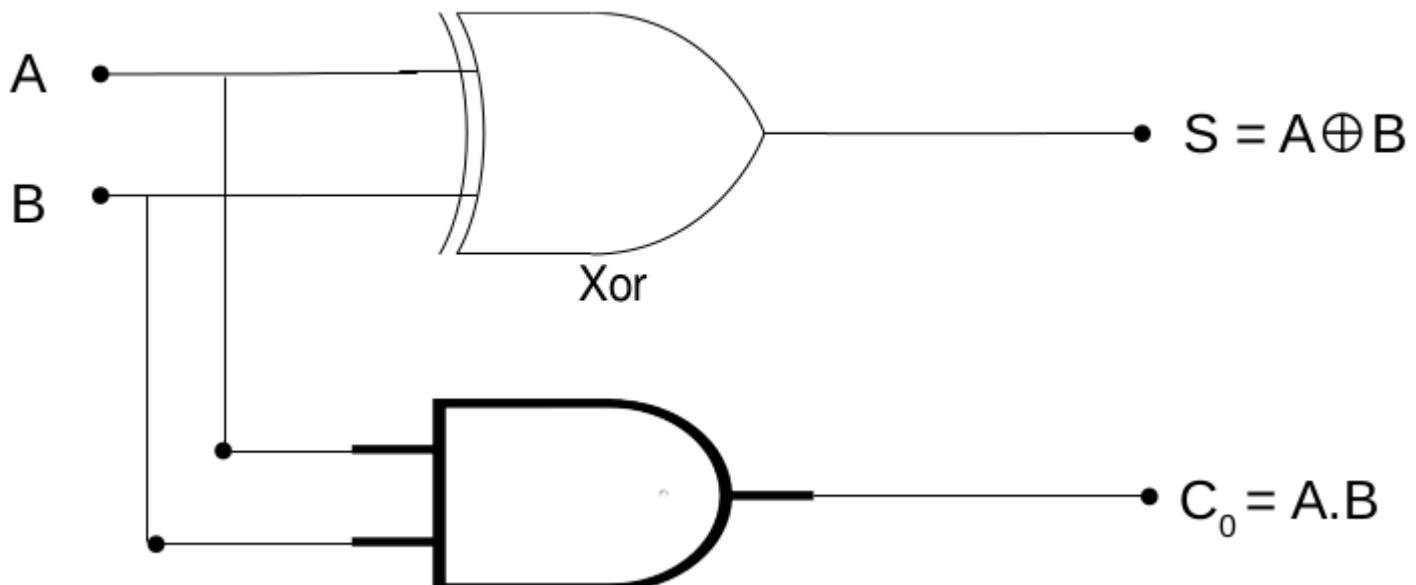
Details to write in Lab Copy

- Title
- Objective
- Apparatus Required
- Theory
- Pin Configurations
- Circuit Diagram
- Observation Table / Truth Table
- Conclusion

Experiment 2:

Implementation of half adder & full adder

Half Adder

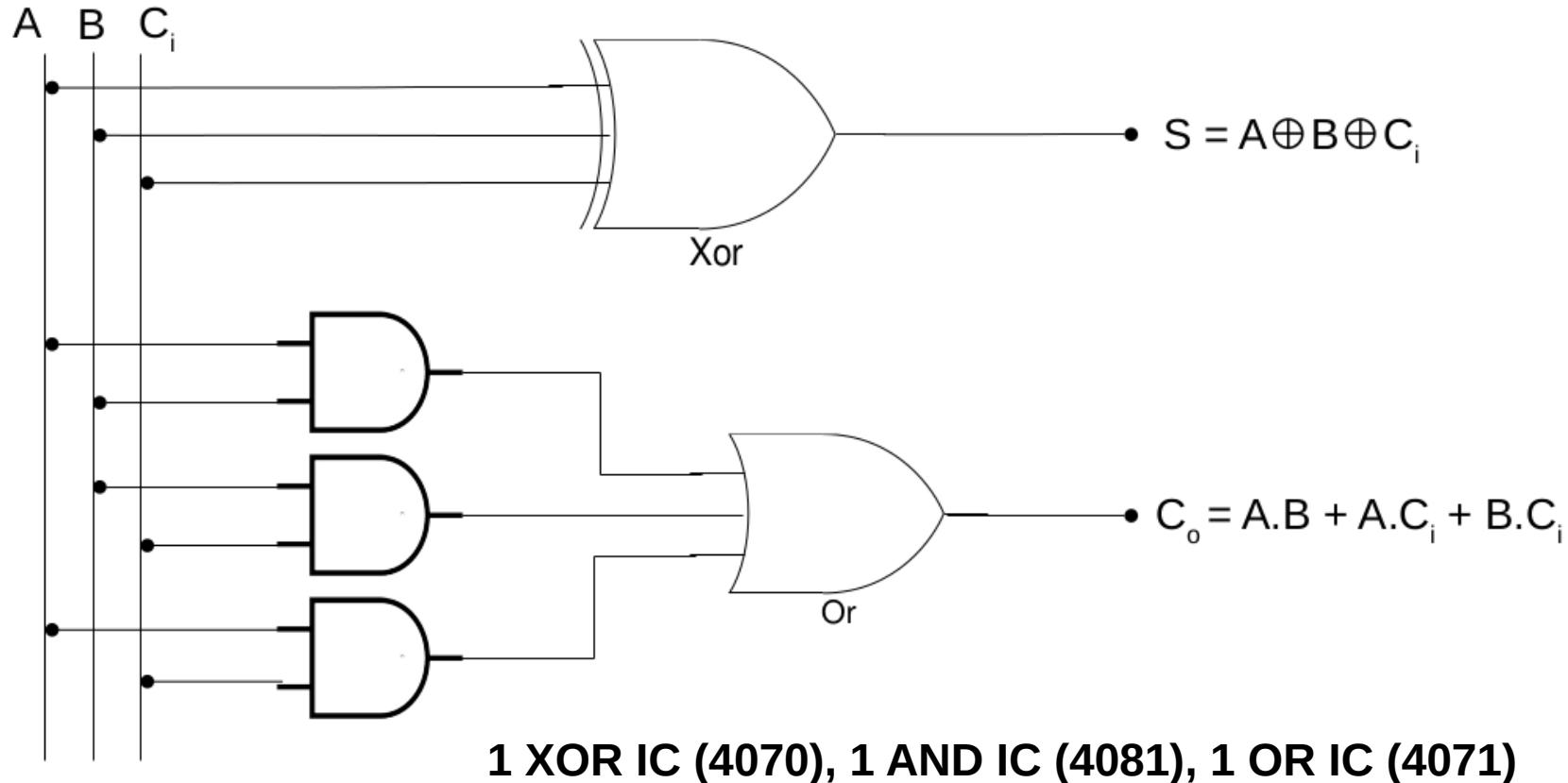


1 XOR IC (4070), 1 AND IC (4081)

Truth Table

A	B	S	C ₀
0	0	0	0
0	1	1	0
1	0	1	0
1	1	0	1

Full Adder



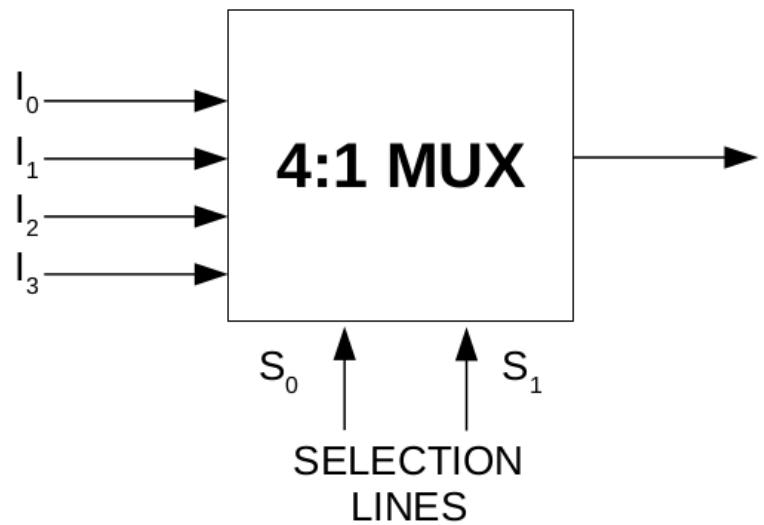
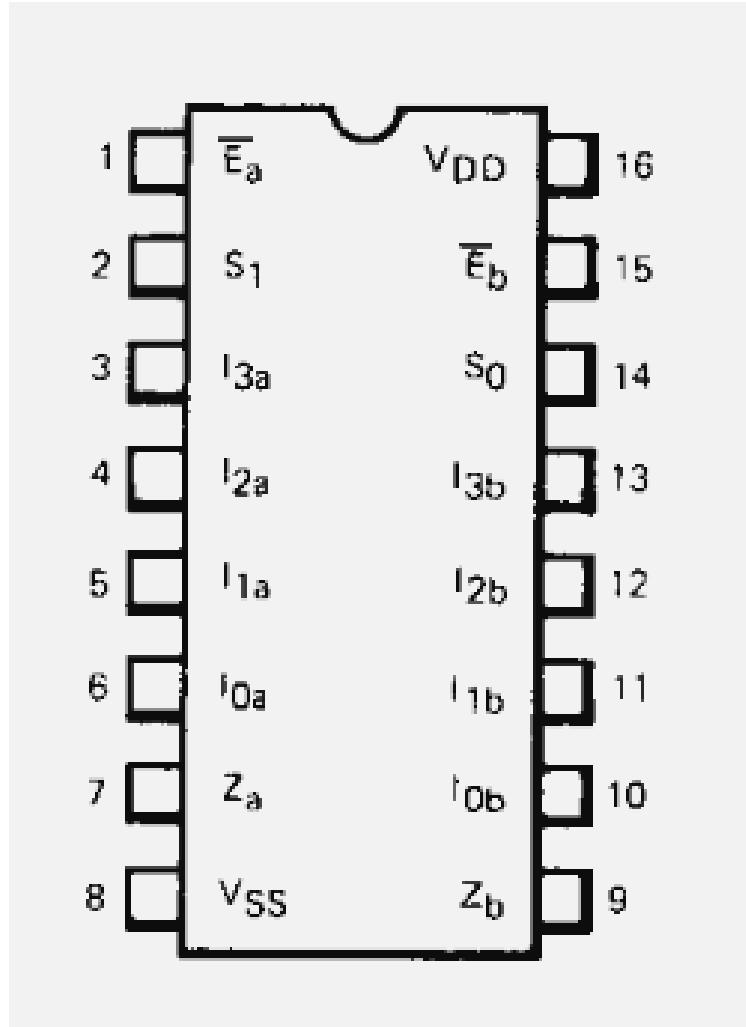
Truth Table

A	B	C _i	S	C _o
0	0	0	0	0
0	0	1	1	0
0	1	0	1	0
0	1	1	0	1
1	0	0	1	0
1	0	1	0	1
1	1	0	0	1
1	1	1	1	1

Experiment 3:

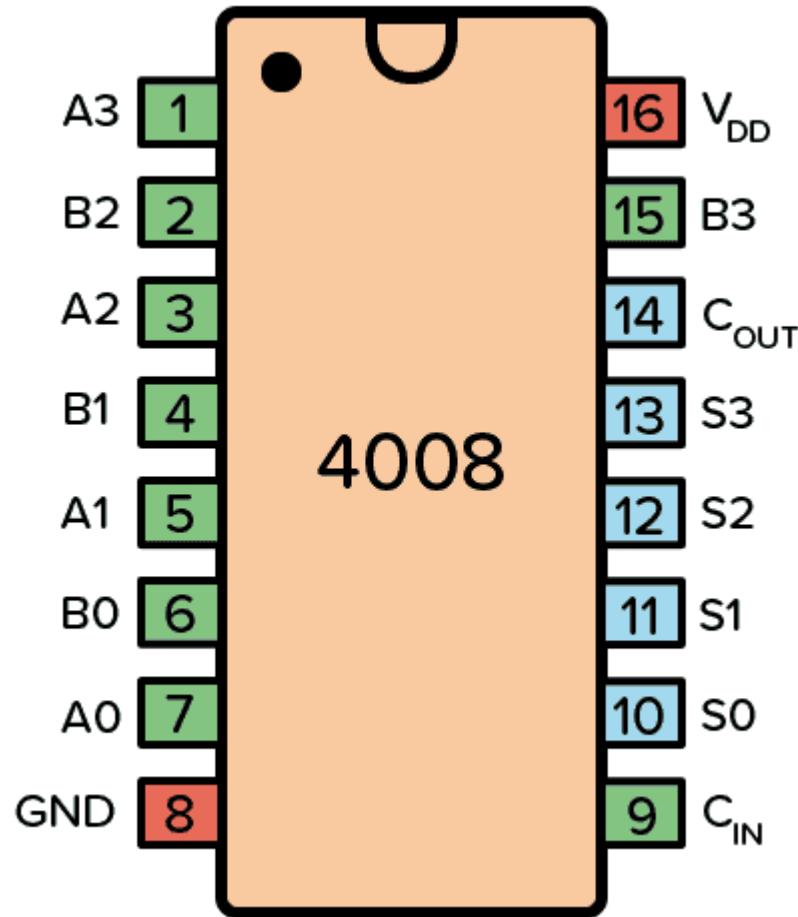
Verification of mux IC : 4539B

IC 4539B



Experiment 4: Design & Implementation of BCD adder circuit. (Using IC 4008)

IC 4008 – 4 Bit Full Adder



BCD to Decimal beyond 9

$$10_{bcd} = 0001\ 0000_b = 16_d$$

$$11_{bcd} = 0001\ 0001_b = 17_d$$

$$12_{bcd} = 0001\ 0010_b = 18_d$$

$$13_{bcd} = 0001\ 0011_b = 19_d$$

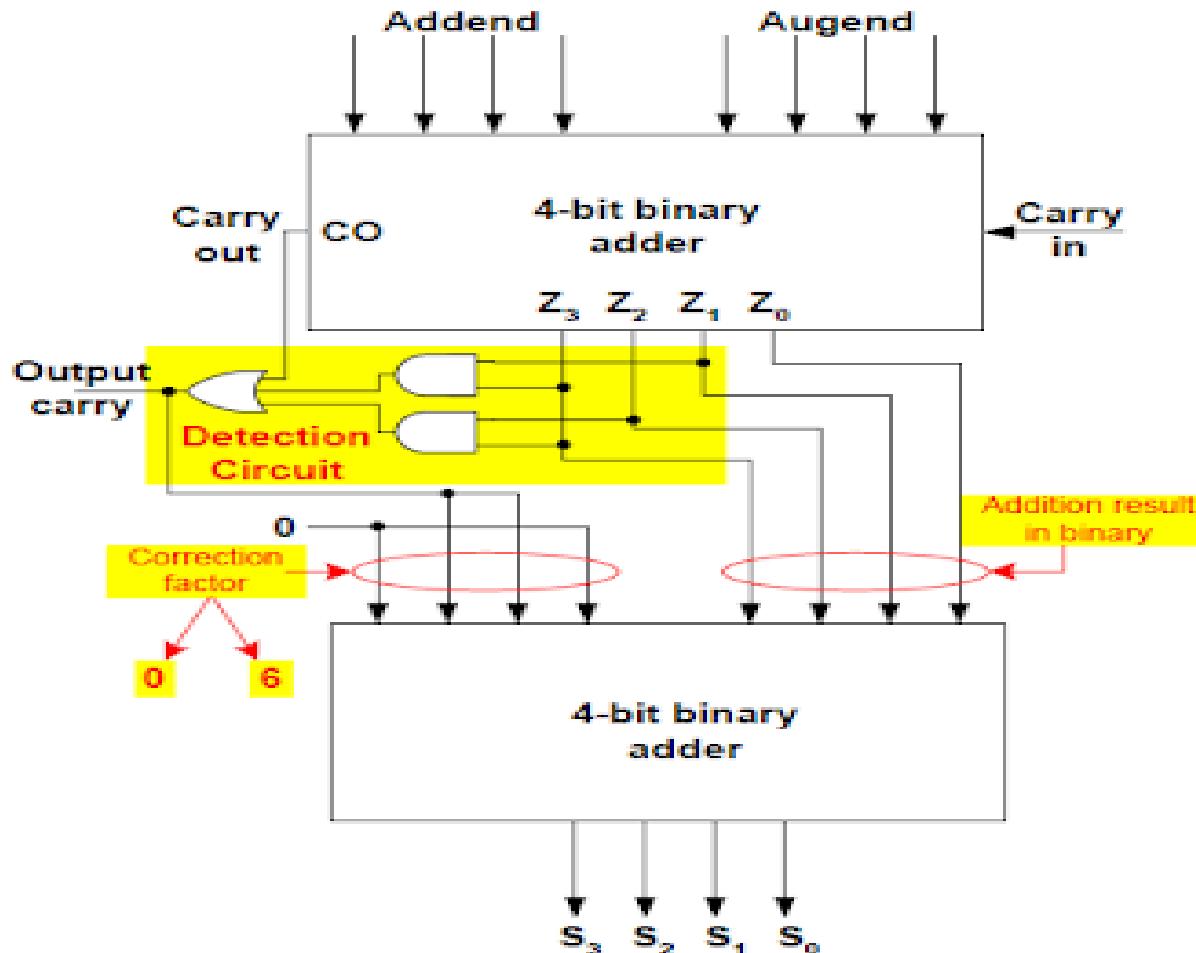
$$14_{bcd} = 0001\ 0100_b = 20_d$$

Truth Table - Deriving Expression

Decimal	Binary Sum					BCD Sum				
	C'	S3'	S2'	S1'	S0'	C	S3	S2	S1	S0
0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	1	0	0	0	0	1
2	0	0	0	1	0	0	0	0	1	0
3	0	0	0	1	1	0	0	0	1	1
4	0	0	1	0	0	0	0	1	0	0
5	0	0	1	0	1	0	0	1	0	1
6	0	0	1	1	0	0	0	1	1	0
7	0	0	1	1	1	0	0	1	1	1
8	0	1	0	0	0	0	1	0	0	0
9	0	1	0	0	1	0	1	0	0	1
10	0	1	0	1	0	1	0	0	0	0
11	0	1	0	1	1	1	0	0	0	1
12	0	1	1	0	0	1	0	0	1	0
13	0	1	1	0	1	1	0	0	1	1
14	0	1	1	1	0	1	0	1	0	0
15	0	1	1	1	1	1	0	1	0	1
16	1	0	0	0	0	1	0	1	1	0
17	1	0	0	0	1	1	0	1	1	1
18	1	0	0	1	0	1	1	0	0	0
19	1	0	0	1	1	1	1	0	0	1

$$C + S_3 \cdot S_2 + S_3 \cdot S_1$$

BCD adder



1. Design & Implementation of 1-bit ALU circuit (Using IC 4539B MUX)

