

* Digital Electronics and Logic Design (DELD) - Practical Number - 4

Name:- Kaustubh Shrikant Kabra.

Class:- Second Year Engineering.

Div:- A Roll Number:-

Batch:-

Department:- Computer Department.

College:- AISSMS's IOIT.

Title:-

4-bit Binary Adder (IC-7483).

Aim:-

Design and Realization of BCD Adder using 4-bit binary Adder (IC-7483).

Objective:-

Student will be able to realize the BCD adder using binary adder and logic gates.

Theory:-

Adder:-

An adder is digital circuit that perform addition of number. In many computer and other kind of processor adder are used in arithmetic logic Unit (ALU).

Binary Adder:-

Binary Adder are arithmetic circuits in the form of half-adder and full adder used to add together two binary digits. It is very common combinational logic circuit which can be constructed

using logic circuit just a few basic logic gates allowing it to add together two or more binary number is the Binary Adder.

BCD Adder:-

A BCD Adder is a circuit that add two BCD digits and produce a sum digit also in BCD.

To implement BCD Adder we require:-
 ① 4-bit binary adder, 2 if sum greater than 9.
 ② Logic circuit to detect sum greater than 9.

Truth Table:-

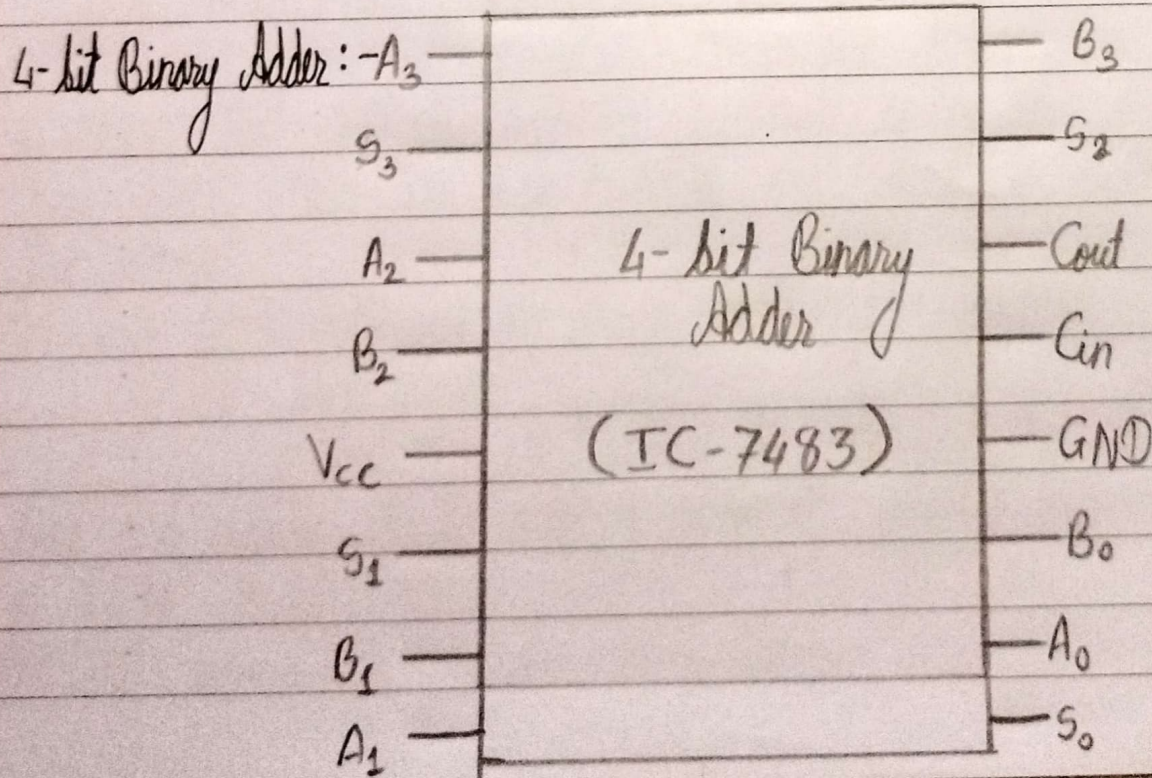
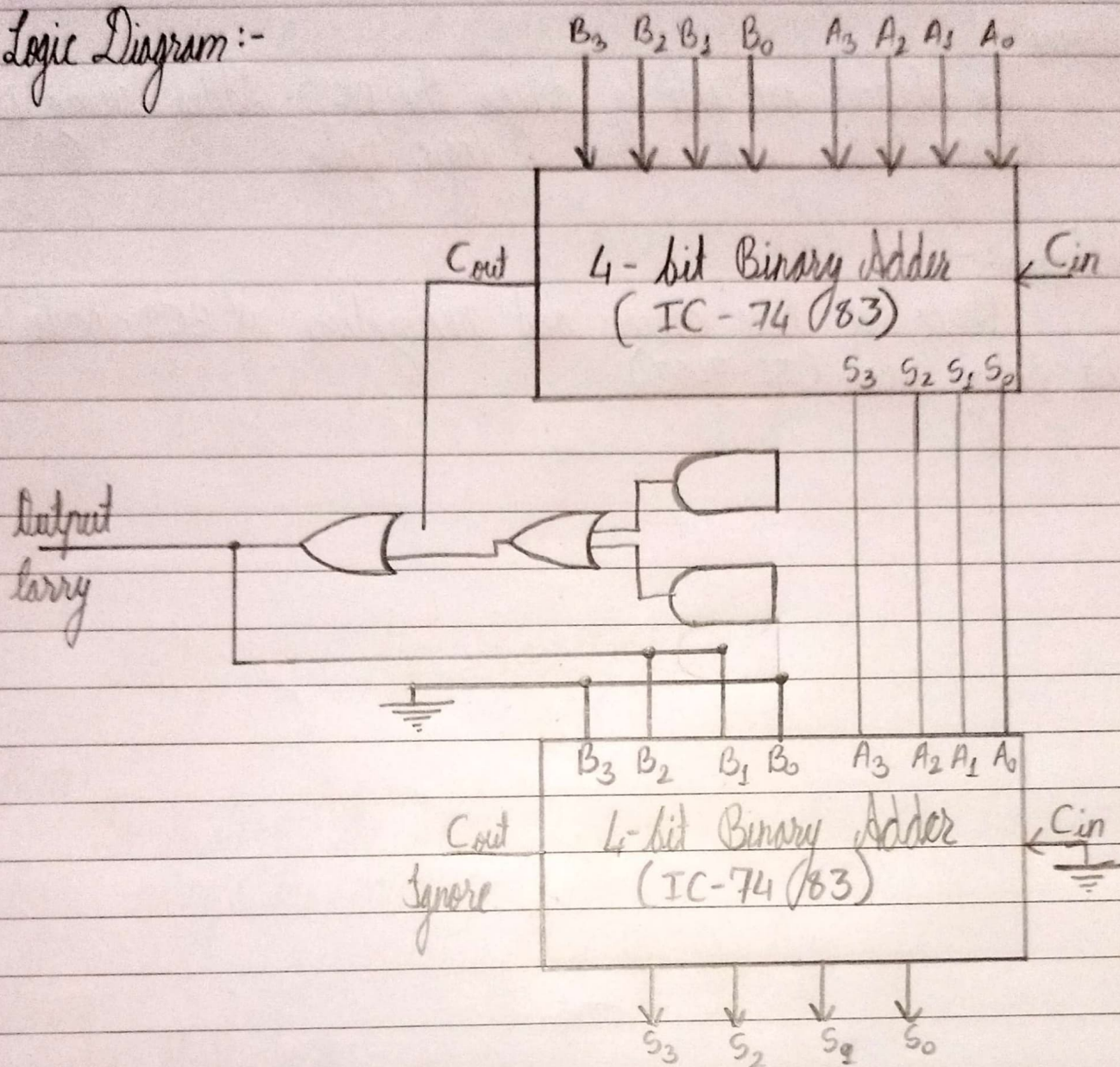
Input				Output
A (s_3)	B (s_2)	C (s_1)	D (s_0)	Y
0	0	0	0	0
0	0	0	1	0
0	0	1	0	0
0	0	1	1	0
0	1	0	0	0
0	1	0	1	0
0	1	1	0	0
0	1	1	1	0
1	0	0	0	0
1	0	0	1	0
1	0	1	0	1
1	0	1	1	1
1	1	0	0	1
1	1	0	1	1
1	1	1	0	1
1	1	1	1	1

Simplification of the truth table using K-map.

$s_3 s_2 \backslash s_1 s_0$	00	01	11	10
00	0	0	0	0
01	0	0	0	0
11	1	1	1	1
10	0	0	1	1

$$Y = s_3 s_2 + s_3 s_1$$

Logic Diagram :-



Outcome:-

The student are able to design the BCD-Adder using 4-bit Binary Adder and other logic gates.

Conclusion:-

Hence we have design and realization of BCD-Adder using 4-bit binary adder (IC-7483).