

### **Experiment No. 05**

**Name of the Experiment:** BCD TO EXCESS- 3 CODE CONVERTERS.

**Objective:** To learn to realize BCD to Excess-3 code using adder IC 7483. To learn to realize Excess-3 to BCD Code using adder IC 7483.

**COMPONENTS REQUIRED:**

IC 7483, IC 7486, Patch Cords & IC Trainer Kit.

**THEORY:**

Code converter is a combinational circuit that translates the input code word into a new corresponding word. The excess-3 code digit is obtained by adding three to the corresponding BCD digit. To Construct a BCD-to-excess-3-code converter with a 4-bit adder feed BCD code to the 4-bit adder as the first operand and then feed constant 3 as the second operand. The output is the corresponding excess-3 code. To make it work as an excess-3 to BCD converter, we feed excess-3 code as the first operand and then feed 2's complement of 3 as the second operand. The output is the BCD code.

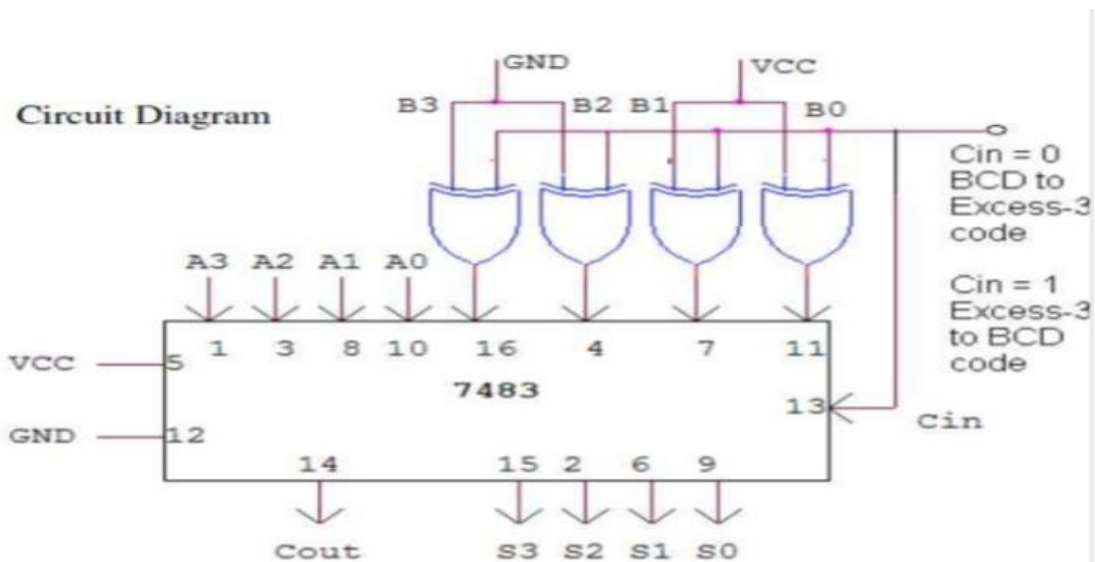
**TRUTH TABLE:**

i) **BCD - EXCESS-3 CODE:**

BCD				Excess-3			
0	0	0	0	0	0	1	1
0	0	0	1	0	1	0	0
0	0	1	0	0	1	0	1
0	0	1	1	0	1	1	0
0	1	0	0	0	1	1	1
0	1	0	1	1	0	0	0
0	1	1	0	1	0	0	1
0	1	1	1	1	0	1	0
1	0	0	0	1	0	1	1
1	0	0	1	1	1	0	0

ii) EXCESS-3 – BCD CODE

Excess-3				BCD			
0	0	1	1	0	0	0	0
0	1	0	0	0	0	0	1
0	1	0	1	0	0	1	0
0	1	1	0	0	0	1	1
0	1	1	1	0	1	0	0
1	0	0	0	0	1	0	1
1	0	0	1	0	1	1	0
1	0	1	0	0	1	1	1
1	0	1	1	1	0	0	0
1	1	0	0	1	0	0	1



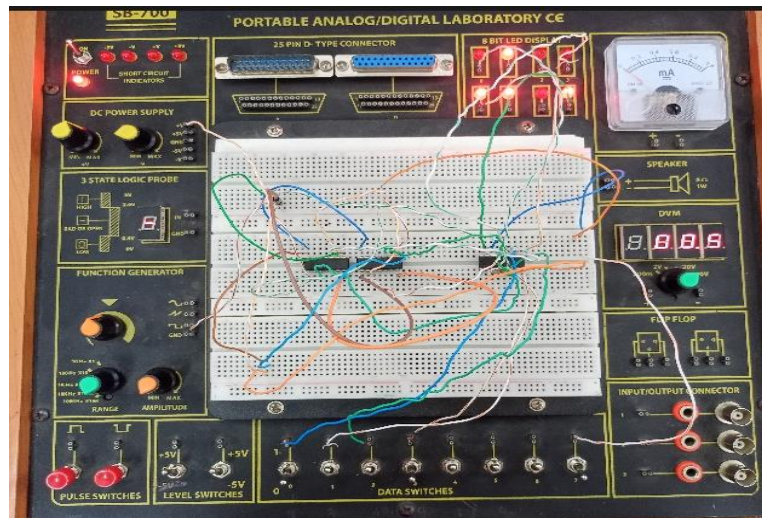
**PROCEDURE:**

- Check all the components for their working.
- Insert the appropriate IC into the IC base.
- Make connections as shown in the circuit diagram.
- Apply BCD code as first operand (A) and binary 3 as second operand (B) and cin=0 for

Realizing BCD-to-Excess-3-code:

- Apply Excess-3-code code as first operand (A) and binary 3 as second operand (B) and  $C_{in}=1$  for realizing Excess-3-code to BCD.
- verify the Truth Table and observe the outputs.

**Diagram:**



**DISCUSSION:**

Realized BCD code to Excess-3 code conversion and vice versa using 7483 IC.