DIGITAL LOGIC DESIGN LAB (EET1211)

LAB V: DESIGN AND TEST VARIOUS CODE CONVERTER CIRCUITS

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Branch:			**Section:**
S. No.	**Name**	**Registration No.**	**Signature**

Marks: _____/10

Remarks:

Teacher's Signature

I. OBJECTIVE:

1. Design a combinational circuit with four input lines that represent a decimal digit in BCD and four output lines that generate the 9's complement of the input digit.

2. Design a combinational circuit with four inputs and four outputs that converts a 4bit binary number into the equivalent 4bit Gray code.

3. Design a combinational circuit that accepts a 2-bit number and generates an output binary number equal to the square of the input number.

II. PRE-LAB

For Obj. 1:

a. Write the truth table for the circuit.
b. Derive the Minimized Boolean expression for each output of the circuit.
c. Draw the logic diagram for the circuit.
d. Write HDL code.

For Obj. 2:

a. Write the truth table for the circuit.
b. Derive the Minimized Boolean expression for each output of the circuit.
c. Draw the logic diagram for the circuit.
d. Write HDL code.

For Obj. 3:

a. Write the truth table for the circuit.
b. Derive the Minimized Boolean expression for each output of the circuit.
c. Draw the logic diagram for the circuit.
d. Write HDL code.

III. LAB:

Components Required:

S. No	Name of the Component	Specification	Quantity

HDL Program:

Observation:

Conclusion:

IV. POST LAB:

1. Design a BCD to excess-3 code converter using the unused combinations of the code as don't- care conditions.

2. What is the advantage of Gray code?

3. Draw the logic circuit that converts a 4 bit Gray code to binary code.