National University of Sciences and Technology (NUST)
School of Electrical Engineering and Computer Science

Department of Electrical Engineering

Faculty Member:_____   **Dated:** _____

Course/Section:_____   **Semester:** _____

EE221: Digital Logic Design

Lab 4: Minimization of Boolean Functions

Name	Reg. No.	Report Marks / 10	Viva Marks / 5	Total Marks / 15

Lab 4: Minimization of Boolean Functions

In this lab the students will perform functions minimization and hardware implementation of given functions.

Objectives:
- ✓ Understand Minimization of Boolean Functions
- ✓ Hardware Implementation of Basic Logic Circuits

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Pre-Lab Tasks:

1. Write the Boolean expression of the following two functions. Simplify the expression using algebraic manipulation and draw the logic diagram.

$$F (A, B, C) = \sum (2, 3, 7)$$

$$G (A, B, C) = \sum (4, 5, 7)$$

2. Mention the number of literals and gates needed for implementing the above function in hardware.

Lab Tasks:

Lab Task 1:

Implement the Boolean functions in hardware you simplified in your Pre-Lab Task. Make truth table and **Schematic**. Mention what and how many gates you would be using? The following gates are available to you.
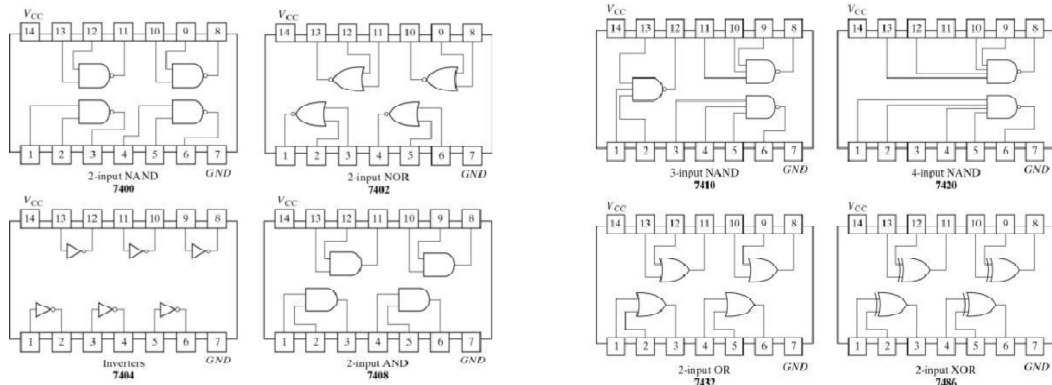

Fig. 11-1(cond) Digital Gates in IC Packages with Identification Numbers and Pin Assignments

Truth Table:

A	B	C	F

A	B	C	G

Schematic: