

Name \_\_\_\_\_  
Date \_\_\_\_\_  
Section \_\_\_\_\_

## Introduction to Discrete Digital Logic

Note: In this first lab, the laboratory manual will also be your worksheet. Follow the steps, fill in the blanks and turn it in!

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### Part 1: Create a 2- Input NAND from a 3-Input NAND

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You are to design a circuit for the function  $F = (AB)'$  using a 3-Input NAND gate.

1. Draw the 3-input gate truth table.
  
  
  
  
  
  
  
  
  
  
2. Implement this circuit on the breadboard. Ask your T.A to check your implementation and sign your report.

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### Part 2: A function with four variables

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You are to simplify the function  $F = A'B'D + BC'D + A'BC + ACD$  and design a circuit for the simplified function using any 7400 logic you wish.

1. Draw the function truth table.
  
  
  
  
  
  
  
  
  
  
2. Draw the function K-map and simplify it.
  
  
  
  
  
  
  
  
  
  
3. Draw a logic diagram of the function implementation.

4. Draw a layout diagram of the implementation

5. Implement this circuit on the breadboard. Ask your TA to check your implementation and sign your report.