

# ECE 204L - THE VERY BASICS - LAB 2 INTRODUCTION TO SWITCHING CIRCUITS - PART II

WINTER 2004

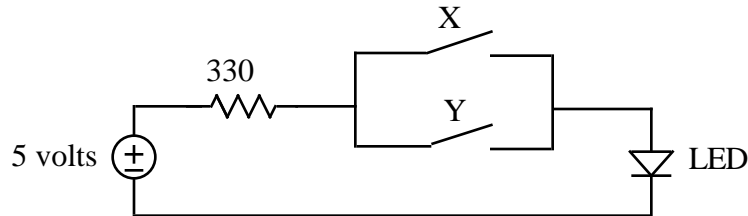
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## OBJECTIVE

The objective of this lab is to obtain simple switching circuits for simple logic equations.

## LAB

1. Given the following switching circuit



- a. **Prelab** - Draw a copy of the circuit diagram
- b. **Prelab** - Calculate the truth table as follows

X	Y	LED

- c. Build your circuit and then use it to measure the circuit's truth table
- d. Verify that your calculated and measured truth tables are the same
- e. Make use of your truth table to obtain the logic equation for the LED
- f. Make use of your truth table to draw a representative timing diagram for the circuit

2. Given the following logic equation

$$\text{LED} = (X \text{ AND } Y) \text{ OR } Z$$

- a. **Prelab** - Write the truth table for this logic equation
- b. **Prelab** - Draw a circuit diagram for a switching circuit for this logic equation
- c. Build your circuit and then use it to measure the circuit's truth table
- d. Verify that you calculated and measured truth tables are the same
- e. Make use of your truth table to draw a representative timing diagram for your circuit

3. Repeat Problem (2) for your own logic equation.