North East University Bangladesh

Department of Computer Science and Engineering

Lab Report

Experiment Name: Diode Circuit Analysis
Experiment No: 02

Submitted to
Shahadat Hussain Pervez
Lecturer of CSE Dept.
North East University Bangladesh

Submitted by
Md. Abdul Mutalib
ID: 190303020001
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Table of Contents

Table of Figure

Table of Tables

Objective

The objective of this experiment is to analyse simple diode circuits and to build logic circuits using diodes and resistors.

Theory

Theory needed for this lab should be read from lecture 3 of theory course.

Apparatus Needed

- Trainer Board (Bread board)
- Diodes
- Resistor
- DC Voltmeter
- DC Ammeter
- DC power supply
- Function Generator
- Oscilloscope
- Connecting wires

Circuits

For analysis of diode circuit. Here, I have shown three figures (1,2,3) circuit for diode analysis.

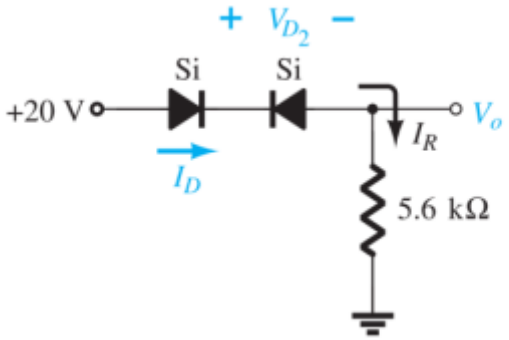

Figure 1 Circuit for diode analysis

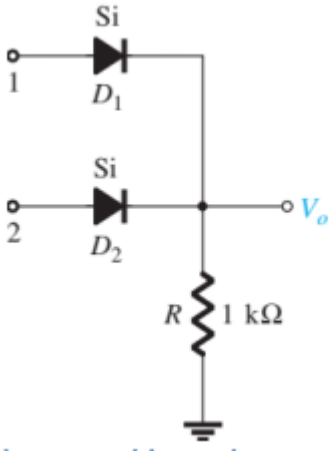

Figure 2 Positive Logic OR Gate

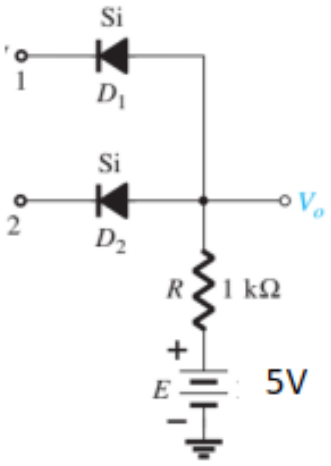

Figure 3 Positive Logic AND Gate

Procedure

1. Analytically find I_D, V_{D2}, *and* V_0 for the circuit in figure 1 and record the result in table 1.
2. Implement the circuit in figure 1.

3. Find $I_D, V_{D2}, and\ V_0$ from the circuit and record the result in table 1.5V
4. Implement the circuit in figure 2 and apply inputs according to the table 2 and note the output voltages in table 2 to check if OR gate is properly implemented or not.
5. Implement the circuit in figure 3 and apply inputs according to the table 3 and note the output voltages in table 3 to check if AND gate is properly implemented or not.

Table 1 Data for circuit 1

Measurement	Theoretical value (Step 1)	Practical value (Step 2)
I_D		
V_{D2}		
V_0		

Table 2 Data for circuit 2

Input 1 Voltage	Input 2 Voltage	Output Voltage	Output logic level
0 V	0 V		
0 V	5 V		
5 V	0 V		
5 V	5 V		

Table 3 Data for circuit 3

Input 1 Voltage	Input 2 Voltage	Output Voltage	Output logic level
0 V	0 V		
0 V	5 V		
5 V	0 V		
5 V	5 V		

Report

1. Carefully Fill all the data for table 1, 2, 3.
2. Comment on the learnings from this LAB.