NEUB CSE 214 Experiment 2

North East University Bangladesh

Department of CSE

Course no: CSE 214

Experiment no: 02

Experiment Name: Diode Circuit Analysis and Logic gates using diodes

CAUTIONS:

1. **Don't switch on the supply of the circuit until you have verified the circuit carefully**
2. **Take readings of apparatus carefully**
3. **Take care of any bare circuit elements in energized condition**
4. **Never try to touch bare live wires**

Objective

The objective of this experiment is to analyze 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

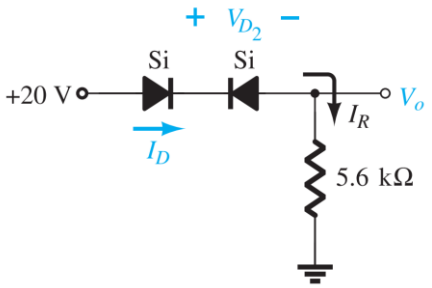

Figure 1 Circuit for diode analysis

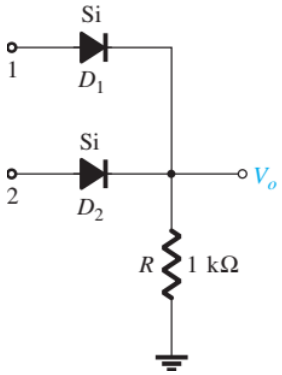

Figure 2 Positive Logic OR Gate

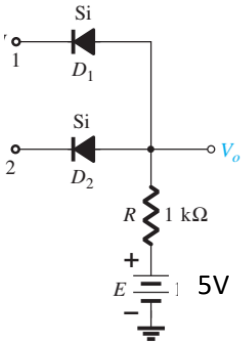

Figure 3 Positive Logic AND Gate

Procedure

1. Analytically find $I_D, V_{D_2}, and\ V_0$ for the circuit in figure 1 and record the result in table 1.
2. Implement the circuit in figure 1.
3. Find $I_D, V_{D_2}, and\ V_0$ from the circuit and record the result in table 1.

4. Implement the circuit in figure 2 and apply inputs according 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 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_{D_2}		
V_0		

Table 2 Data for circuit 2

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

Table 3 Data for circuit 3

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

Report

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