Name: Mostoor Mofiz Arman Date: 11-02-2023

ID: 1921079642 Lab no: Exp-01.

Discussion:

In this experiment we learned about how a diode works and it's depending on the direction of power. We have also learned about forward and reverse biasing circuits and its relation with open and short circuit. In this experiment, we have worked with forward biasing circuit with 1 KΩ resistance. Actually we didn't get 1KΩ resistance from the resistor, we got 0.992KΩ resistance from the resistor. The threshold voltage of the diode in our experiment approximately between 0.5V to 0.6V. we got that threshold voltage after constructing the circuit and measuring the V_{dc}, V_d & V_R. After that we calculated

I_d by multiplying V_R and Resistance 0.992KΩ. In our experiment, we are very careful about our resistance, voltage value and for that reason, we measured that resistance and voltage values before constructing the circuit. Therefore, we completed our experiment.

Name : Mostcore Mofiz Ataman Date : 18-02-23

ID : 1921079642 Lab no : Exp-01

Discussion (2):

In this experiment, we learned about oscilloscope. Oscilloscope is a visualization tool which is used to measure voltage & frequency. In short it is called scope. It has two channels and those channels are used for input & output works. The signal being measured is input to the oscilloscope through a probe which is connected to the input terminals of the oscilloscope. The probe converts the electrical signal into a voltage that displays on the scope. Ground parts must be connected to the black of its supplier that why its called ground reference measurement device. we also learn about scope's attenuation which is the loss or reduction in amplitude or strength of the

signal as it travels through the system. we can be added the two vertical amplitude visualization knob and one horizontal amplitude visualization knob. On the other hand, we also learned about the three ways to measure voltage frequency in oscilloscope - block count, cursor and measure button. Lastly we built the circuit as shown in the circuit diagram with the help of one 1kΩ resistor, one 1N4007 p-n junction diode and signal generator. we also used DMM to measure the voltage across through the resistor and diode. Although we also used the DMM to measure the resistance of the resistor before building the circuit. Lastly we used oscilloscope to visualize the frequency, ~~before~~ took the measurement from the scope and ~~finish~~ completed our experiment.

Experimental Setup :

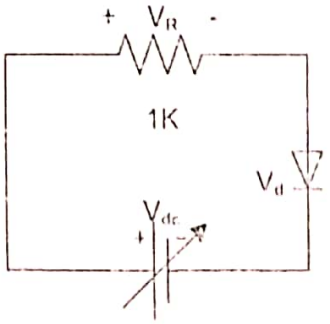

Figure 2.6 : Circuit Diagram for Obtaining Diode Diode Forward Characteristics.

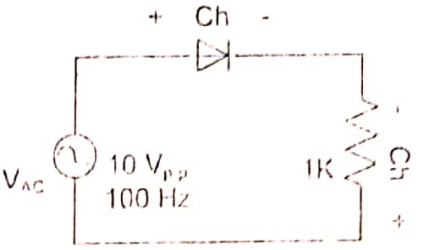

Figure 2.7 : Circuit Diagram for Obtaining Characteristics From Oscilloscope.

Procedure :

1. Measure the resistance accurately using multimeter.
2. Construct the circuit as shown in figure - 1.6.
3. Vary input voltage V_{dc}. Measure V_{dc}, V_d, V_R for the given values of V_d and record data on data table. Obtain maximum value of V_d without increasing V_{dc} beyond 25 volt.
4. Calculate the values of I_d using the formula, $I_d = V_R / R$.
5. Construct the circuit as shown in figure - 1.7.
6. Make proper connection and observe the output from the oscilloscope.
7. Repeat the step 5 and 6 by increasing the input supply frequency 5 KHz.

R=0.992 KΩ

Data Table :

V_{dc} (volt)	Measured V_{dc} (volt)	V_d (volt)	V_R (volt)	$I_d = V_R / R$ (mA)
0	0.3	0.3	0	0
1	1.67	0.446	0.47	0.47
2	2.03	0.509	1.52	1.53
4	4.14	0.549	3.46	3.41
6	6.13	0.571	5.20	5.24
8	8.02	0.585	7.25	7.31
10	10.16	0.609	9.43	9.51
12	12.17	0.615	11.15	11.24
14	14.07	0.625	13.03	13.14
16	16.09	0.637	14.97	15.09