

رقم التجربة:- (١)

اسم التجربة:- CHARACTERISTICS OF SEMICONDUCTOR DIODE

الغرض من التجربة :-

The purpose of the experiment is to examine characteristics of a silicon diode and to determine the barrier potential of the diode. From the characteristic curve determine the dc resistance, ac resistance, for forward biased conditions and reverse resistance for reverse biased conditions.

الأجهزة والمعدات:-

1. Breadboard & DC power supply.
2. Diode & 1K $\Omega$  Resistor.
3. AVO meters.

المناقشة والاستنتاجات:-

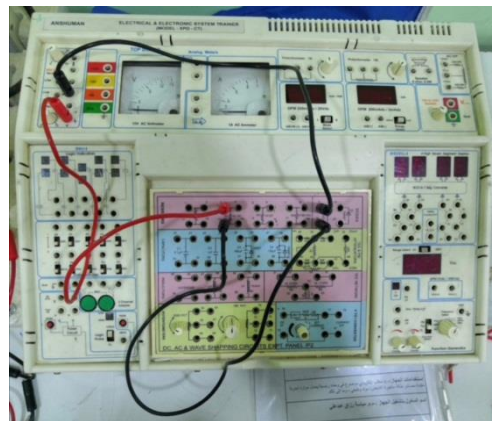
المناقشة :

1. How does PN-junction diode acts as a switch?
2. What is the effect of temperature in the diode reverse characteristics?
3. What is break down voltage?
4. Compare between the Si & Ge diode? which is has the better forward characteristic? What is the barrier field and how is it produce?

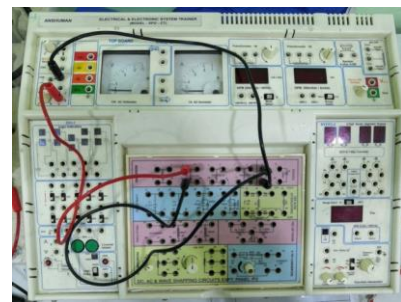
الاستنتاج :

- The diode is a device made up of a junction of n-type and p-type semiconductor material.
- An ideal diode has two regions: a conduction region of zero resistance and a non-conduction region of infinite resistance.

- In forward bias operation, the silicon diode will not conduct significant current until the voltage reaches about 0.7V, called cut-in voltage.
- After the point of cut-in voltage small change in voltage causes large increase in current.
- In reverse bias operation, the diode will not conduct significant current until certain threshold voltage called breakdown voltage.
- DC resistance or static resistance is the ratio of voltage to current in the forward bias characteristics.
- AC or dynamic resistance is the reciprocal of the slope of the characteristic curve.



**Forward Biased**



**Reverse Biased**