



VIVA - VOCE

Q.1. What is objective of your experiment?

Ans. To study forward and reverse characteristics of p-n-junction diode.

Q.2. What property p-n-junction exhibits?

Ans. It exhibits the property of rectification. That is, a current flow by applying a voltage in one direction (forward bias, p as positive) is different from the current flow which results by applying the same voltage in opposite direction (reverse bias, p as negative).

Q.3. What is p-n-junction diode?

Ans. When p-type and n-type germanium/silicon crystals are joined together, a p-n-junction diode is formed.

Q.4. What do you mean by semiconductor?

Ans. A material whose conductivity lies in between metals and insulators is called a semi conductor e.g. Ge and Si.

Q.5. What is intrinsic semiconductor?

Ans. A semiconductor which is free from impurity or a pure form of semiconductor is called intrinsic semiconductor.

Q.6. What is extrinsic semi conductor? What are their different types?

Ans. The conductivity of intrinsic semi conductor is very low. In order to increase the conductivity an impurity atom either from 3rd group or from 5th group is added in a controlled manner. The process is called doping and semiconductor so formed is known as extrinsic semi conductor. The extrinsic semiconductor is of two types:

- (i) p-type semiconductor
- (ii) n-type semiconductor.

Q.7. What do you mean by p-type germanium and n-type germanium?

Ans. If an impurity added to germanium is from III group elements (e.g. boron), then majority charge carriers are holes i.e., positive particles and resulting crystal is called p-type germanium. If an impurity added to germanium is from V group elements (e.g. arsenic/antimony), then majority charge carriers are electrons i.e., negative particles and resulting crystal is called n-type germanium.

Q.8. What is hole?

Ans. Hole is a vacancy of electron.

Q.9. What is donor energy level?

Ans. A level occupied by donor impurity atoms between valence band and conduction band. It is just below (0.03eV) the bottom of conduction band.

Q.10. What is acceptor energy level?

Ans. A level occupied by acceptor impurity atoms between valence band and conduction band. It is just above the top of valence band.

Q.11. What is Fermi level?

Ans. The top most filled level at 0K is called Fermi level.

Q.12. What is Fermi energy?

Ans. Energy corresponding to Fermi level is called Fermi energy.

Q.13. Explain depletion layer.

Ans. When a p-type crystal is joined with n-type crystal, the resulting arrangement is called junction diode or semiconductor diode. In junction diode the electrons from n-side are diffused into p-side and holes from p-side are diffused into n-side, it creates a region which is devoid of free charges known as depletion layer.

