Solid State Electronics – Unit 8: Zener Diodes and Voltage Regulation

Matching Electrical Terms Worksheet – Answer Key

Name _____

The concept in which electric charge moves from the negative side of a supply to the positive side of the supply is called ***ELECTRON FLOW***.

The concept in which electric charge moves from the positive side of a supply to the negative side of the supply is called ***CONVENTIONAL FLOW***.

The absence of an electron is a ***HOLE***. They move in the direction opposite to electrons.

N – type semiconductors are produced by adding impurities with 5 valence electrons. This contributes extra electrons.

P – type semiconductors are produced by adding impurities with 3 valence electrons. This contributes to a deficiency of electrons.

The ***BARRIER VOLTAGE*** is the amount of electromotive force necessary to start current flow through a P-N junction (diode). This voltages for a silicon diode is typically about .7v.

The ***DEPLETION REGION*** is an insulating region contained within a diode. The mobile charge carriers (electrons and holes) have been forced away by an electric field. The only elements left in the depletion region are ionized donor or acceptor impurities.

In order to obtain proper operating conditions of semiconductors in circuits, certain predetermined voltages or currents must be established at various points in the electronic circuit. This principle is known as ***BIASING***.

An atom is made of ***PROTONS, NEUTRONS, and ELECTRONS***.

In the theory of atomic structure, the outer shell of electrons is called the ***VALENCE SHELL***.

NEGATIVE IONS are created when a molecule gains a negatively charged electron.

POSITIVE IONS are created when a molecule loses a negatively charged electron.

The ***ELECTRON*** is a subatomic particle. It has a negative electric charge

The ***PROTON*** is a subatomic particle. It has a positive electric charge.

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The ***NEUTRON*** is a subatomic particle. It has no net electric charge.

TRIVALENT MATERIAL has three electrons in the outer or valance shell it is used to "dope" silicon to make it a P type material.

PENTAVALENT MATERIAL has five electrons in the outer or valance shell it is also used to "dope" silicon to make N type material.

A ***SEMICONDUCTOR CRYSTAL*** describes a highly ordered structure, occurring due to the intrinsic nature of its constituents to form symmetric patterns.

If ***IMPURITIES*** are added to a semiconductor material, the electrical properties of the material can be modified.

The process of adding impurities to a semiconductor material to change the semiconductor material's electrical properties is called ***DOPING***.

A ***PASSIVE COMPONENT*** is one that may consume, but does not produce energy.

A ***COVALENT BOND*** is a chemical bond that involves the sharing of electron pairs between atoms.

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