# 28 Lecture - PHY301

## **Important Subjective**

#### What is a PN junction diode?

**Answer:** A PN junction diode is a semiconductor device that consists of a junction between a p-type semiconductor material and an n-type semiconductor material.

#### How is a PN junction diode created?

**Answer:** A PN junction diode is created by doping the semiconductor materials with impurities, such as boron for p-type material and phosphorus for n-type material.

#### What is forward biasing in a PN junction diode?

**Answer:** Forward biasing is the application of a positive voltage to the p-type side and a negative voltage to the n-type side of the diode, allowing current to flow through the diode.

#### What is reverse biasing in a PN junction diode?

**Answer:** Reverse biasing is the application of a negative voltage to the p-type side and a positive voltage to the n-type side of the diode, blocking the flow of current through the diode.

#### What is the forward voltage drop of a PN junction diode?

**Answer:** The forward voltage drop is typically around 0.7 volts for silicon diodes and 0.3 volts for germanium diodes.

### What is the reverse breakdown voltage of a PN junction diode?

**Answer:** The reverse breakdown voltage is the maximum reverse voltage that can be applied before the diode breaks down and allows current to flow in the reverse direction.

#### What are the applications of PN junction diodes?

**Answer:** PN junction diodes have applications in rectifiers, voltage regulators, signal detection and modulation circuits, and optical devices such as photodiodes and LEDs.

#### What happens to the depletion region in a PN junction diode during forward biasing?

**Answer:** The depletion region narrows during forward biasing due to the attraction between the majority carriers.

## What happens to the depletion region in a PN junction diode during reverse biasing?

**Answer:** The depletion region widens during reverse biasing due to the repulsion between the majority carriers and the reverse bias voltage.

## What is the significance of the PN junction diode in electronics?

**Answer:** The PN junction diode is a fundamental semiconductor device with many important applications in electronic circuits, making it an essential component in many electronic devices.