

Q1: Difference between diode and Zener diode with practical application

**Answer:**

**Diode**

A diode is a semiconductor device which conduct in only one direction.

In a normal diodes doped intensity is low.

A normal diode operated in reversed biased will get destroyed.

The doping characteristics of diode is moderately doped.

The diode is generally used in the rectifier, clipper, clamper etc.

**Zener diode**

A Zener diode is a semiconductor device which conduct in forward biased as well as reversed biased.

In Zener diode doping intensity is high to achieve sharp break down.

Zener diode is designed in a way that it conduct in a reversed biased mode with out getting damaged.

The doping characteristics of Zener diode is sharply diode.

The Zener diode is generally used as a voltage regulator.

Q2 a) Explain Bipolar Junction Transistor (BJT)

**Answer:**

A bipolar junction transistor is a type of transistor that use both electron and hole as charge carriers. Unipolar transistor such as field effect transistor use only one kind of charge carrier. Injected at one of its terminals to control a much larger current flowing between two other terminals, making the device cable of amplification or switching.

BJT use two junction between two semiconductor types, n-type and p-type, which are region in a simple crystal of material. The junction can be several different ways, such as changing the doping of semiconductor material as it is grown, by depositing metal pellets to form alloy junction, or by such method as diffusion of n-type and p-type doping substance into crystal.

b) How does BJT works

**Answer:**

BJT works:

Transistor are one of the very important components used in electronic circuit construction, the humble component can almost be found everywhere; from simple relay driver circuit to complex motherboard circuit transistors prove their presence in fact your microcontrollers and microprocessors are nothing but a collection of a large number of transistor synthesized to perform a collective operation.

c) what are the types of BJT

**Answer:** there are two types of BJT:

- 1) NPN
- 2) PNP