

Assignment

Instructor: Engr. Sajid Nawaz

Module: 2nd (BTech) (E)

Course title: Electronics

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Q1: Differentiate between Diode and Zener Diode with practical applications?

Ans:

Diode	Zener Diode
↳ A Diode is a semiconductor device which conduct in only one direction.	↳ A zener diode is a semiconductor device which conduct in forward biased as well as reversed biased.
↳ A normal diode if operated in reversed biased will get destroyed.	↳ A zener diode is designed in a way that it conduct in a reversed biased mode without getting damaged.
↳ In normal diodes doping intensity is low.	↳ In zener diode doping intensity is high to achieve sharp break

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| ↳ The doping characteristics of diode is moderately doped. | down. |
| ↳ The breakdown voltage in case of diode, the breakdown voltage is comparatively high. | ↳ The doping characteristics of zener diode is sharply doped. |
| ↳ The diode is generally used in the rectifier, clipper, clamper etc. | ↳ The breakdown voltage in case of zener diode is sharp. |
| | ↳ The zener diode is generally used as a voltage regulator. |



Q2: (a) Explain Bipolar junction transistor (BJT)?

Ans: A Bipolar junction transistor is a type of transistor that use both electron and has a charge carriers. Unipolar transistor, such as a field effect transistor, use only one kind at charge carriers. Infected at one of its terminals to control a much larger current flowing between two other terminals, making the device capable of amplification or switching.

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

The superior predictability and performance of junction transistors soon displaced the original point contact transistor. Diffused transistor, along with other components, are elements of integrated circuit for analog and digital functions. Hundreds of bipolar junction transistors can be made in one circuit at very low cost.



Q2: (b) How does BJT works?

Ans: **BJT works:**

Transistor are one of the very important components used in electronic circuit constructions. The humble components can almost

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be found everywhere, from simple relay based circuit to complex motherboard circuit transistors prove their presence. In fact, your microcontrollers and microprocessor are nothing but a collection of a large number of transistor synthesized to perform a collective operation. Do remember that many switching devices like BJT, MosFET, GBT, scr Tr, Ac, PAc, etc can be collectively called transistor. But the most basic of the transistor, is BJT transistor.



Q2: (c) What are the types of BJT?

Ans:

There are two types of transistor
(i) NPN transistor and (ii) PNP transistor.

