

## UNIT -1

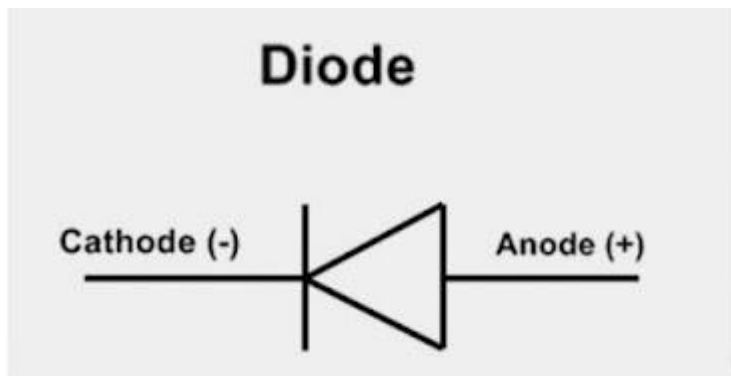
### TWO MARK QUESTIONS & ANSWERS

**Question 1: What is a PN junction diode?**

Answer: PN junction diode is a two terminal unidirectional conduction device. It consists of a p-type and n-type semiconductor material joined together to form a junction.

**Question 2: Draw the symbol for a PN junction diode.**

Answer:



**Question 3: Define the PIV of a PN junction diode.**

Answer: PIV – Peak Inverse Voltage

PIV is defined as the maximum voltage that a diode can withstand under reverse biased condition.

**Question 4: What are the applications of PN junction diode?**

Answer: The applications of a PN junction diode are,

- 1.As a switch,
- 2.In rectifier circuits,
- 3.In clipper and clamper (wave shaping) circuits,
- 4.In power supplies.

**Question 5: State the advantages of bridge rectifier.**

Answer: The advantages of bridge rectifier are,

- 1.There is no need to tap the secondary of the transformer,
- 2.Transformer Utilisation Factor (TUF) is high (81.1%),
- 3.It can be used for high voltage applications.

**Question 6: What is a zener diode?**

Answer: A diode that exhibits zener effect is known as zener diode.

**Question 7: What is zener effect?**

Answer: When the doping is heavy, even for the low reverse voltage, the electric field at the PN junction is strong. This result in the breakaway of covalent bonds and electrons are available for conduction. This is called zener effect.

**Question 8: What are the applications of zener diode?**

Answer: The applications of a zener diode are,

1. Voltage regulator,
2. To fix reference voltage in electronic circuits,
3. Clipper circuits,
4. Square wave generator.

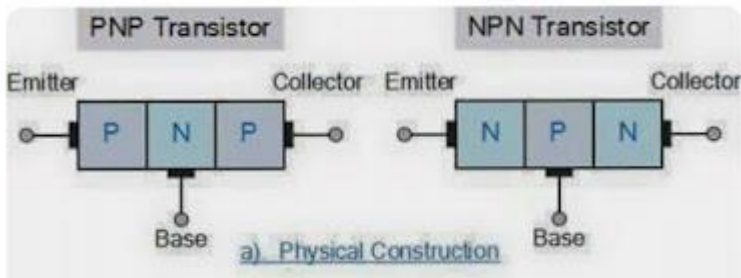
**Question 9: Write the difference between PN junction diode and zener diode.**

Answer: The differences between the PN junction diode and zener diode are tabulated below:

PN Junction Diode	Zener Diode
A p-type and n-type semiconductor material is joined together to form PN junction diode.	Zener diode is a diode that exhibits zener effect.
The junction is lightly doped.	The junction is heavily diode.
The reverse biased voltage – current characteristics is not sharp.	The reverse biased voltage – current characteristics is sharp.
The breakdown occurs at reverse voltage greater than 6V.	The breakdown occurs at reverse voltage less than 6V.

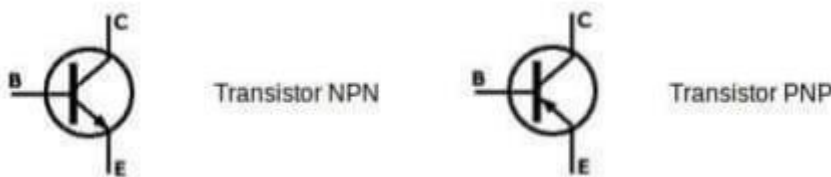
**Question 10: What is a Bipolar Junction Transistor (BJT)?**

Answer: Bipolar Junction Transistor (BJT) is a three terminal semiconductor device and has two back to back PN junctions. The operation of BJT depends on the interaction of majority and minority carriers. BJT transfers signals from a low resistance to high resistance circuits.



**Question 11: Draw the symbol for PNP and NPN transistor.**

Answer:



**Question 12: Define Early effect.**

Answer: The dependency of base width on collector-to-emitter voltage is known as the Early effect. It is also known as base width modulation.

When the voltage across collector and emitter ( $V_{ce}$ ) is made to increase, the depletion layer width between collector and base tends to increase. This decreases the base region width.

**Question 13: Give the biasing conditions of BE (Base-Emitter) and BC (Base-Collector) junction for a transistor to operate as an amplifier.**

Answer: The biasing conditions for a transistor to act as an amplifier are,  
 BE (Base-Emitter) junction – forward biased,  
 BC (Base-Collector) junction – reverse biased.

**Question 14: Why CE configuration of a BJT is widely used? Give reason.**

Answer: The CE configuration is used for most of the transistor applications because of its high current gain.

**Question 15: Why CE configuration is used in amplifier circuits?**

Answer: The CE configuration is used in amplifier circuits because of its high current gain and voltage gain.

**Question 16: Define current amplification factor.**

Answer: In a transistor, working as an amplifier with ac input signal, the ratio of change in output current to the change in input current is known as Current amplification factor.

**Question 17: Give the applications of transistor in its three different configurations.**

Answer: The applications of a transistor are,

CB configuration - Used in high frequency circuits

CE configuration - Used in audio frequency circuits

CC configuration - Used for impedance matching.