

Physics - 12th Class Physics Chapter 7 Short Questions Preparation

Q1. Give four application or uses of photodiode?

Ans 1: It is used as

- 1. Detection of both visible and invisible radiations.
- 2. Logic circuits
- 3. Automatic switching
- 4. Optical communication equipment

Q2. How the current flows in forward and reverse biased diode?

Ans 1: In forward biasing, the external potential difference supplies energy to free electrons in n-region and holes in p-region to overcome the potential barrier, a current of the order of a few milli-amperes begins to flow across the pn junction. In reverse biasing ,no current flow due to the majority charge carrier, However a very small current of the order of of few micro amperes flow across the junction due to minority charge carriers. It is also known as reverse current or leakage current.

Q3. What is the potential barrier? What is the value of potential barrier of SI and Ge?

Ans 1: The potential difference across the depletion region which acts as a barrier to the flow of charge carriers is called potential barrier. The value of potential barrier for germanium is 0.3V and for silicon is 0.7 V.

Q4. What do LED and LASER stand for?

Ans 1: LED stands for light emitting diode..

Laser stands for light amplification stimulated emission radiation.

Q5. How the normal operation of transistor is achieved?

Ans 1: For the normal operation the base emitter junction of transistor is forward biased and collector base junction is reverse. In a common emitter amplifier ,input signal is applied between base and emitter and output signal is taken across collector and emitter, Similarly emitter base junction is forward biased and collector base junction is reverse biased.

Q6. What is photodiode? Write down its two main applications.

Ans 1: Photodiode is used for the detection of light. It is used in reverse biased state. Reverse current increase with the intensity of incident light. When no light incidents then reverse current will be negligible. It is used as

- 1. Detection of both visible and and invisible radiations
- 2. Automatic switching

- Q7. Define logic system and logic gates.
 - **Ans 1:** A digital system deals with the quantities or variable which have only two discrete values or state.

The electronic circuits which implements the various logic operation are known as logic gates.

- Q8. Define current of gain of a transistor
 - **Ans 1:** The ratio of output current to input current is called current gain of a transistor. The ratio of collector current to base current is called current gain of a transistor.
- Q9. Define Open Loop gain of operational amplifier.
 - **Ans 1:** The ratio of output voltage to voltage difference between non-inverting and inverting inputs ,when there is no external connection between the input and output is called open loop gain of operational amplifier.
- Q10. Why is the photodiode operated in reverse biased state?
 - **Ans 1:** Photodiode is used for the detection of light. So it is used in reverse biased state. Reverse current increase with the intensity of incident light. When no light incidents, then reverse current will be negligible.