Physics - 12th Class Physics Chapter 7 Short Questions Preparation

Q1. What is meant by rectification?

Ans 1: The conversing of alternating current signal into pulsating direct current signal is called rectification.The current for this purpose is called rectifier circuit.

Q2. What is semiconductor diode?

Ans 1: p-n junction is called semiconductor diode.

Q3. What is the effect of forward biased and reverse biasing of a diode on the width of depletion region?

Ans 1: When forward biased then the width of depletion region decreases and when reverse biased then the width of depletion region increase.

Q4. 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 orderof 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.

Q5. What is principle of vital ground?

Ans 1: In an operational amplifier ,if the non inverting terminal is grounded by the concept of virtual ground the inverting terminal is also at ground potential though there is no physical connection between the inverting terminal and the ground,This is the principle of virtual ground.

Q6. 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.

Q7. Why charge carriers are not present in the depletion region?

Ans 1: This is due to the fact when an electron from an n region diffuses into the p-region,it leaves behind a positive ion.When this electron recombines with the hole in the p-region,a negative ion is formed,So no charge carrier are available in this region,though it contains immobile positive and negative ions.

Q8. Why the base current is transistor is very small?

Ans 1: Base is very thin so a number of electrons attracted by collector and very few enter into the base.And base current is very small.

Q9. The anode of a diode is 0.2V positive with respect to the cathode,It it forward biased?

Ans 1: Yes when anode is 0.2V positive with respect to cathode,it is forward biased.But the value of potential barrier for germanium is 0.3 V and for silicon is 0.7 V.Therefore there will be no conduction of current.

Q10. What is the role of potential barrier in a diode?How it is formed in diode?

Ans 1: At the formation of pn-junction ,the free electrons in n-region because of their random motion diffuse into the p-region,.As a result of this diffusion a region is formed around the junction consisting of positive and negative ions,Due to charge on these ions a potential difference develops across the depletion region,This potential difference is called potential barrier,stops further diffusion of electron into the p-region.
