Physics - ICS Part 2 Physics Chapter 18 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 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.

Q3. How is the XOR gate so called?

Ans 1: One of its most commonly used applications is as a basic logic comparator which produce a logic "1" output when its two inputs bits are not equal.Because of the ,the XOR gate has an inequality status being known as an odd functions.

Q4. 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.

Q5. 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.

Q6. Define Depletion region?

Ans 1: A region in a semiconductor device,usually at the junction of p-type and n-type materials ,in which there is neither an excess of electrons nor of holes is called depletion region,It charge less region.

Q7. What do LED and LASER stand for?

Ans 1: LED stands for light emitting diode..

Laser stands for light amplification stimulated emission radiation .

Q8. Give any two characteristics of operational amplifier.

Ans 1: Input Resistance: It is the resistance between the + and - input of the amplifier,Whose value is of the order of several mega ohms.
Output resistance:It is the resistance between the output terminal and ground.Its value is only a few ohms.

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.
