Physics - ICS Part 2 Physics Chapter 18 Short Questions Preparation

Q1. 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.

Q2. What is OP-GATE?

Ans 1: OR-GATE implements the logic of OR operation.It has two or more inputs and a single output.Its output will be zero only when all the inputs are zero.

Q3. What is semiconductor diode?

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

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. 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. 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

Q7. Write a note on LED.

Ans 1: Light emitting diode are made from the special semiconductor such as gallium arsenide and gallium arsenide phosphide in

which the potential barrier between p and n side is such that when electrons combines with a hole during forward biased conduction,a photon of visible light is emitted.
LED are used in 7-segment display,small light sources etc.

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. 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.

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.
