

## Physics - 12th Class Physics Chapter 7 Short Questions Preparation

Q1. What is OR-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.

Q2. What is the net charge on a n-type or p-type substance?

**Ans 1:** Since they are electrically neutral substance, So the net charge on them is zero.

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. 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.

Q5. 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.

Q6. What is semiconductor diode?

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

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 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.

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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.

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Q10. 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.

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