

Physics - 12th Class Physics Chapter 1 Short Questions Preparation

Q1. Define electric polarization and electric dipole.

Ans 1: When dielectric is placed between the plates of capacitor, positive and negative charge of its molecules displace from their position. Positive charges are attracted towards negative plates and negative charges towards positive plate, dipoles are formed. This process is called polarization.

Two equal and opposite charges separated by a small distance is called dipole.

Q2. What is electric potential energy and electric potential difference?

Ans 1: Electric potential energy: The energy is acquired by unit positive charge in carrying it from one point to the other against the electric field keeping it in electrostatic equilibrium is called as electric potential energy, it is the energy stored in the charge 'q' because of its position in an electric field. It is measured in joules.

Ans 2: Electrical potential difference: The electric potential difference between two points is defined as the work done in carrying a unit positive charge from one point to other point while keeping the charge in electrostatic equilibrium.

Q3. Define electric potential and give its SI units.

Ans 1: The electric potential at any point in an electric field is equal to work done in bringing a unit positive charge from infinity to that point keeping it in equilibrium. Its SI unit is Volt (V).

Q4. Define electron volt.

Ans 1: It is defined as The amount of energy acquired or lost by an electron when it is displaced across two points having potential difference of one volt. It is measured in electron volts.

Q5. Is it true that Gauss's law states that the total number of lines of forces crossing any closed surface in the outwards direction is proportional to the net positive charged enclosed within surface?

Ans 1: Yes the above statement is true, The total number of lines of force crossing any closed surface in the outwards directions means electric flux.

Q6. How sharks look their prey?

Ans 1: Sharks have special organs, called the ampullae of Lorenzini that are very sensitive to electric field and can detect potential difference of the order of nano volt and can locate their prey very precisely.

Q7. What is meant by EEG and ERG?

Ans 1: Electroencephalography: is usually applied over human brain to check its abnormal behaviour by the use of electrical energy. For this electrodes are connected to the selected portion of the head and the corresponding response is seen graphically through the screen of a recording device.

Ans 2: Electrocardiography: records the voltage between points on human skin generated by the electrical process in the heart, it is made in running position providing information about hearts performance under stress.

Q8. What is Potential Gradient?

Ans 1: The quantity gives the maximum value of rate of change of electric potential in magnitude and direction with respect to distance, it is known as potential gradient.

Q9. What depend on the slow or fast charging and discharging of a capacitor?

Ans 1: How fast or how slow the capacitor is charging or discharging depends upon the products of the resistance and the capacitance called time constant. Capacitor is charged or discharged rapidly when RC is small.

Q10. Give the statement of Gauss's law.

Ans 1: It states that the total electric flux through any closed surface is equal to $1/\epsilon_0$ times the total charged enclosed in it.
