Chapter - 12(Electricity)

ELECTRIC CHARGE : Electric charge is characteristic developed in particle of material due to which it exert force on other such particles. It automatically accompanies the particle wherever it goes.

Positive and negative charges: The charge acquired by a glass rod when rubbed withsilk is called positive charge and the charge acquired by an ebonite rod when rubbed with wool is called negative charge.

Coulomb: It is the S.I. unit of charge. One coulomb is defined as that amount of charge which repels an equal and similar charge with a force of 9 x 109 N when placed in vacuum at a distance of 1 meter from it. Charge on an electron = -1.6 x 10-19

coulomb.

Static and current electricities: Static electricity deals with the electric charges at rest while the current electricity deals with the electric charges in motion.

Conductor: A substance which allows passage of electric charges through it easily is called a conductor'. A conductor offers very low resistance to the flow of current. For example copper, silver, aluminium etc.

Insulator: A substance that has infinitely high resistance does not allow electric current to flow through it. It is called an ‗insulator'. For example rubber, glass, plastic, ebonite etc.

Electric current: The flow of electric charges across a cross-section of a conductor constitutes an electric current. It is defined as the rate of flow of the electric charge through any section of a conductor. Electric current = Charge/Time or

I = Q/t

Electric current is a scalar quantity.

Ampere: It is the S.I. unit of current. If one coulomb of charge flows through any section of a conductor in one second, then current through it is said to be one ampere.

1 ampere = 1 coulomb/1 second or 1 A = 1C/1s = 1Cs-1

1 milliampere = 1 mA = 10-3 A

1 microampere = 1μA = 10-6 A

Electric circuit: The closed path along which electric current flows is called an electric

circuit'.

Conventional current: Conventionally, the direction of motion of positive charges is taken as the direction of current. The direction of conventional current is opposite to that of the negatively charged electrons.

Electric field: It is the region around a charged body within which its influence can be experienced.

Electrostatic potential: Electrostatic potential at any point in an electric field is defined as the amount of work done in bringing a unit positive charge from infinity to that point. Its unit is volt. Positive charges

move from higher to lower potential regions. Electrons, being negatively charged, move from lower to higher potential regions.