

SUMMARY

- 1) Electric potential is the condition that determines direction of flow of charge. Electrical potential at a point in an electric field is defined as the amount of work done in bringing a unit positive charge from infinity to that point.
- 2) Electrical potential is a scalar quantity.
- 3) The potential difference between two points in an electric field is the amount of work done in moving a unit positive charge from one point to the other.
- 4) The rate of flow of charges constitutes current.
- 5) Ohm's law states that the current flowing through a metallic conductor is directly proportional to the potential difference across its ends, provided temperature and other physical conditions of the conductor remains the same.
- 6) The opposition or obstruction offered by a conductor to the passage of drifting electrons is called electric resistance.
- 7) Ohm is the unit of resistance.
- 8) When the resistances are combined in series the equivalent resistance is the sum of the individual resistance.
- 9) When the resistances are connected in parallel the reciprocal of the equivalent resistance is equal to the sum of the reciprocals of the individual resistances.
- 10) The amount of heat generated in a conductor of resistance 'R', when current 'I' flows through it in a given time 't', is given by $I^2 R t$.
- 11) Electric power is defined as the rate at which electric energy is dissipated or consumed in an electric circuit.
- 12) Electric power is said to be one watt if a potential difference of one volt causes a current of one ampere to flow through a conductor.
- 13) Kilowatt-hour or kWh is the commercial unit of electrical energy.
- 14) 1 kWh is defined as the amount of electrical energy consumed in 1 hour when the rate of consumption is 1000 Joules/second
 $1 \text{ kWh} = 3.6 \times 10^6 \text{ Joules}$.