

1. There is a positively charged sphere A and negatively charged sphere B, such that they are brought in electrical contact by a copper wire. Answer the following questions:
 - (a) Which sphere is at higher potential before electrical contact on the basis of convention?
 - (b) Which sphere is at lower potential before electrical contact on the basis of convention?
 - (c) In which direction conventional current flows?
 - (d) In which direction electronic current flows?
 - (e) What is potential of the spheres after electrical contact?
2.
 - (a) What do you understand by the term electric potential?
 - (b) Define electric potential in terms of energy spent.
 - (c) State the unit of electric potential and define it.
3.
 - (a) What do you understand by the term quantity of electric charge?
 - (b) State SI unit of electric charge and define it.
 - (c) How many electrons constitute one unit electric charge in SI system?
4.
 - (a) What do you understand by the term electric current?
 - (b) State and define the SI unit of electric current.
 - (c) State the relation between electric current; number of electrons moving in a circuit and time in seconds.
5. How electric current flows in (i) solids (ii) liquids?
6.
 - (a) Define the term potential difference.
 - (b) How is potential difference related to work done and quantity of charge?

1. A charge of 1000 C flows through a conductor for 3 min and 20 s. Find the magnitude of current flowing through conductor.
2. A charge of 5000 C flows through an electric circuit in 2 hours and 30 minutes. Calculate the magnitude of current in circuit.
3. A charge of 8860 C flows through an electric circuit in 2 min and 40 s. Calculate the magnitude of current in circuit.
4. A dry cell can supply a charge of 50 C. If the current drawn from the cell is $750 \mu\text{A}$, find the time in which the cell completely discharges.
5. A battery can supply a charge of $25 \times 10^4 \text{ C}$. If the current is drawn from battery at the rate of 2.5 A, calculate the time in which battery will discharge completely.
6. A dry cell can supply a charge of 800 C. If continuous current of 8.0 mA is drawn, calculate the time in which cell will discharge completely.
7. A charge of 50 mA flows for 0.5 hours through an electric circuit. Calculate the number of electrons which will drift in the circuit. [Charge on one electron $1.6 \times 10^{-19} \text{ C}$]
8. Calculate the total number of electrons flowing through a circuit in 20 mins and 40 s, if a current of $40 \mu\text{A}$ flows through the circuit.
9. 4×10^{20} electrons flow through a circuit in 10 hours. Calculate magnitude of current.
[$1 e = 1.6 \times 10^{-19} \text{ C}$]
10. 25 coulombs of charge is brought from infinity to a given point in an electric field when 75 joule of work is done. What is the potential at the point?
11. What is the electrical potential at a point in an electric field when 24 J of work is done in moving a charge of 96 C from infinity?
12. A charge of 75 C is brought from infinity to a given point in an electric field, when amount of work done is 3.75 J. Calculate the electrical potential at that point.

- SI unit potential difference is :
 - coulomb
 - kelvin
 - volt
 - ampere
- Current in a circuit flows:
 - in a direction from high potential to low potential
 - in a direction from low potential to high potential
 - in a direction of flow of electron
 - in any direction
- In a metallic conductor, electric current is thought to be due to movement of:
 - ions
 - amperes
 - electrons
 - protons
- Assuming that the charges of an electron is 1.6×10^{-19} coulombs, the number of electrons passing through a section of wire per sec, when the wire carries a current of one ampere is :
 - 0.625×10^{19}
 - 1.6×10^{-19}
 - 1.6×10^{19}
 - 0.627×10^{17}
- Which the following is best conductor of electricity?
 - copper
 - gold
 - platinum
 - silver
- What do you understand by the term electric cell?
- Draw a neat and labeled diagram of simple voltaic cell showing clearly the direction of flow of conventional current and direction of flow of electrons.
- Briefly describe the theory of simple voltaic cell.
- What do you understand by the following terms?
 - electric circuit
 - closed electric circuit
 - open electric circuit.
- State two conditions necessary for a circuit, such that electric current flows through it.
- Draw a neat diagram showing
 - closed electric circuit
 - open electric circuit.
- Name four electric conductors and four electric insulators.
- What do you understand by the term electric resistance?
 - Why does the filament of an electric bulb in an electric circuit get white hot, but not the connecting wires?
- Is it correct to say that a resistance wire is an insulator or a bad conductor? Explain your answer.