

Chapter : Electricity (30 marks)

(1×5 = 5)

- Q1. How is an ammeter connected in a circuit to measure current flowing through it.
- Q2. What happens to resistance of a conductor when its area of cross-section is increased.
- Q3. A given length of a wire is doubled on itself and this process is repeated once again. By what factor does the resistance of the wire changes.
- Q4. Name a device that helps to maintain a potential difference across a conductor.
- Q5. Two resistors of  $10\ \Omega$  and  $15\ \Omega$  are connected in series to a battery of 6 V. How can the values of current passing through them be compared.

(2 ×3 = 6)

- Q6. How much current will an electric bulb draw from 220 V source if the resistance of the bulb is  $1200\ \Omega$ ? If in place of bulb, a heater of resistance  $100\ \Omega$  is connected to the sources, calculate the current drawn by it.
- Q7. Draw a schematic diagrams of an electric circuit comprising of 3 cells and an electric bulb, ammeter, plug-key in the ON mode and another with same components but with two bulbs in parallel and a voltmeter across the combination.
- Q8. State difference between the wire used in the element of an electric heater and in a fuse wire.

(3× 3 = 9)

- Q9. Write relation between heat energy produced in a conductor when a potential difference V is applied across its terminals and a current I flows through for 't'.
- Q10. An electric bulb of resistance  $200\ \Omega$  draws a current of 1 Ampere. Calculate the power of the bulb the potential difference at its ends and the energy in kWh consumed burning it for 5h.
- Q11. State Ohm's law. Write the necessary conditions for its validity. How is this law verified experimentally.

( 2×5 = 10)

- Q12. What is meant by electric current? Name and define its SI unit. In a conductor electrons are flowing from B to A. What is the direction of conventional current? Give justification for your answer.
- A steady current of 1 ampere flows through a conductor. Calculate the number of electrons that flows through any section of the conductor in 1 second. (Charge on electron  $1.6 \times 10^{-19}$  coulomb).

**Q13. What is meant by electrical resistivity of a material? Derive its S.I. unit. Describe an experiment to study the factor on which the resistance of a conducting wire depends.**