

## ELECTRICITY (CLASS – X)

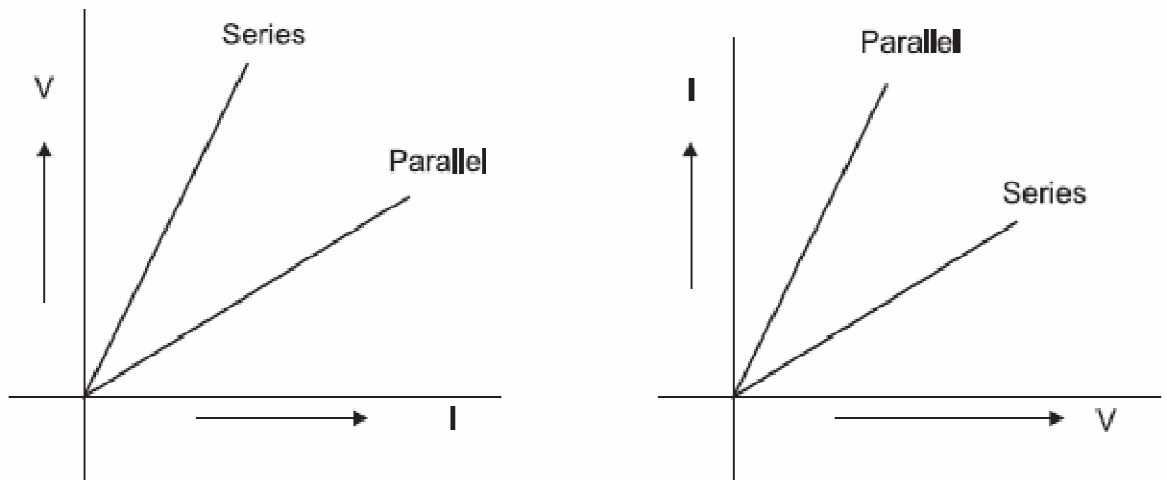
### QUESTIONS FOR PRACTICE

1. State the law that governs the strength of the current passing through a metallic conductor when a p.d is applied across its end. Illustrate this law graphically?
2. Why is an ammeter connected in series and voltmeter in parallel in a circuit?
3. In an experiment the current flowing through a resistor and potential difference across it are measured. The values are given below. Show that these values confirm Ohm's Law and also find the resistance of the resistor.

I (ampere) I(ampere) 1.0 1.0 2 1.5 2.0 2.0 2.5 2.5 3.0 3.0

V (volt) V(volt) 4.0 4.0 6.0 6.0 8.0 8.0 10.0 10.0 12.0 12.0

4. What are ohmic conductors? What are non ohmic conductors? Give example
5. Draw the VI graph for an ohmic and a non ohmic conductor.
6. Calculate the number of electrons constituting one coulomb of charge?
7. A piece of wire is redrawn by pulling it until its length is tripled. Compare the new resistance with the original value.
8. the ratio of resistivity's of two materials a and b is 1:2, ratio of their length is 3:4 and if the ratio of radii is 2:3 find the ratio of resistance of a and b.
9. Two wires are of same length and radius but one of them is copper and the other is of iron. Which will have more resistance? (Given the resistivity of copper =  $1.62 \times 10^{-8}$  ohm meter and resistivity of iron =  $10 \times 10^{-8}$  ohm meter.
10. A wire of resistance 5 Ohm is spent in the form of closed circle. What is the resistance between 2 points at the ends of any diameter of the circle?
11. Two wires of equal cross sectional area, one of copper and other of manganin have same resistance. Which one will be longer?
12. Two students perform an experiment on series and parallel combinations of two given resistors R1 and R2 and plot following VI graph



Which of the graph is (are) correctly labeled. Justify your answer.

13. Draw the circuit consisting of a battery of five 2V cells, 5ohm resistor, 10 ohm resistor, 15 ohm resistor and a plug key. All connected in series (b) Calculate the current passing through the above circuit when key is closed.
14. Three resistors of 4ohms, 6ohms and 12 ohms are connected in parallel. The combination of above resistors is connected in series to a resistance of 2 ohms and then to a battery of 6 volts. Draw a circuit diagram and calculate
  - a) Current in main circuit
  - b) Current flowing through each of the resistors in parallel
  - c) P.d and the power used by the 2 ohm resistor.
15. State the law which governs the amount of heat produced in a metallic conductor when current is passed through it for a given time. Express this law mathematically?
16. State which has a higher resistance. A 50W or 25W lamp. Also find the ratio of their resistances.
17. Why is tungsten used almost exclusively for making the filaments of electric lamps?

18. Write the advantages of connecting electrical appliances in parallel and disadvantages of connecting them in series in a household circuit.
19. State the relation between the commercial and SI unit of electric energy.
20. For a heater rated at 4 kW and 220 V, calculate (a) the current, b) the resistance of the heater, ) the energy consumed in 2 hours, and d) the cost if 1 kWh is priced at Rs. 4.60..