WORKSHEET 1

CHAPTER 8 – CURRENT ELECTRICITY

A. Tick (✓) the correct option.

1. The flow of electrons in a definite direction is called
   a. current. b. resistance. c. potential difference. d. none of these.
2. The SI unit of electric potential is
   a. ampere. b. watt. c. volt. d. none of these.
3. Potential difference is measured by
   a. ammeter. b. spectrometer. c. potentiometer. d. voltmeter.
4. According to Ohm's law, the ratio of potential difference to current is
   a. zero. b. constant. c. infinity. d. none of these.
5. SI unit of resistance is
   a. ohm (Ω). b. watt. c. volt. d. ampere.

B. Fill in the blanks.

1. If area of cross section of the conductor is doubled, its resistance gets _____
2. The resistance of a conductor is _____ proportional to its length.
3. The SI unit of conductance is _____
4. The resistors which strictly obey Ohm's law are called _____
5. _____ is the property of a conductor due to which it resists the flow of electric charges.

C. State whether the following statements are true or false.

1. Internal resistance is directly proportional to the distance between the electrodes.
2. The e.m.f. of a cell is less than the potential difference between the two terminals of the cell.
3. Resistors in parallel combination have same potential difference across them.
4. In homes, electrical devices are connected in series.
5. Temperature has no effect on resistance of a conductor.

D. Match the following.

1. Current	mho
2. Conductance	volt
3. Resistivity	ohm
4. Potential difference	ampere (A)
5. Resistance	ohm-metre

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Class: X Date: .....

E. Answer the following questions.

Very short answer questions

1. What is the SI unit of electric charge?
2. Define electric current.

Short answer questions

1. What are the factors affecting resistivity of a conductor?
2. What will be the resistance of a wire of length 1 m, area of cross section 8 m^2, if the resistivity of the wire is 0.8×10^{-8} ohm-metre?

Long answer questions

1. Differentiate between resistance and resistivity.
2. A cell of e.m.f. 3 V and internal resistance 1 Ω is connected to a resistor of 4 Ω with an ammeter. What is the reading of the ammeter?

ANSWERS

WORKSHEET 1

A. Tick (✓) the correct option.

1. a 2. c 3. d 4. b 5. a

B. Fill in the blanks.

1. halved 2. directly 3. mho 4. ohmic resistors 5. Resistance

C. State whether the following statements are true or false.

1. T 2. F 3. T 4. F 5. F

D. Match the following.

1. Current	ampere (A)
2. Conductance	mho
3. Resistivity	ohm-metre
4. Potential difference	volt
5. Resistance	ohm

E. Answer the following questions.

Very short answer questions

1. Coulomb (C)
2. The rate of flow of charge in a circuit is called electric current.

Short answer questions

1. Resistivity of a substance depends on the following factors
   i. Nature of the material.
   ii. Temperature of the material (wire).
2. $f = 0.8 \times 10^{-8}\ \Omega\text{-m}$
   $l = 1\ \text{m}$
   $A = 8\ \text{m}^2$
   $R = f\frac{l}{A} = 0.8 \times 10^{-8} \times \frac{1}{8} = 10^{-9}\ \Omega$

Long answer questions

1. Refer Table 8.2, Page 161 of the textbook.
2. $\text{e.m.f} = 3\ \text{V}$
   $r = 1\ \Omega$
   $R = 4\ \Omega$
   $R_s = r + R = 1 + 4 = 5\ \Omega$
   $I = \frac{E}{r+R} = \frac{3}{5} = 0.6\ \text{A}$

   The reading is ammeter is 0.6 A.