WORKSHEET 2

CHAPTER 12 – ELECTRICITY

A. Tick (✓) the correct option.

1. Heat flows from the body at higher temperature to lower temperature by
   a. conduction.
   b. convection.
   c. radiation.
   d. induction.
2. The electrolyte used in a dry cell is
   a. KOH. b. $CuSO_4$. c. H_2SO_4. d. NH_4Cl.
3. If the potential difference across the ends of a conductor is doubled, the current flowing through it gets
   a. doubled. b. halved. c. zero. d. none of these.
4. Ohm is the SI unit of
   a. potential difference. b. current. c. resistance. d. speed.
5. The slope of the straight line on *V*–*I* graph, gives
   a. current. b. resistance. c. potential difference. d. none of these.

B. Fill in the blanks.

1. If length of the conductor is doubled, its resistance also gets _____
2. The substances which have infinitely high resistivity are called _____
3. In homes, electrical devices are connected in _____
4. It is common saying that energy saved is energy _____
5. Scientists now have developed technologies that do not damage the environment. Such technologies are called _____

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

1. Every atom contains two types of charged particles – protons and electrons.
2. Conventional direction of electric current is from the negative terminal to the positive terminal of the source.
3. Electric current is the flow of protons in the conductor.
4. The resistance of a conductor is inversely proportional to its area of cross section.
5. The SI unit of resistivity is ohm metre.

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Class: IX Date: .....

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D. Match the following.

1.	Potential difference	ampere (A)
2.	Resistivity	coulomb (C)
3.	Current	ohm (Ω)
4.	Resistance	ohm-metre (Ω m)
5.	Charge	volt (V)

E. Answer the following questions.

Very short answer questions

1. Define electric potential.
2. How much work is done in moving 6 C of charge across two points having potential difference 30 V?

Short answer questions

1. What do you understand by the term open circuit?
2. What is the main disadvantage of a series circuit?

Long answer questions

1. What are differences between a primary cell and a secondary cell?
2. Write a short note on eco-friendly technologies.

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ANSWERS

WORKSHEET 2

A. Tick (✓) the correct option.

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

B. Fill in the blanks.

1. doubled
2. insulators
3. parallel
4. produced
5. eco-friendly technologies

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

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

D. Match the following.

1. Potential difference	volt (V)
2. Resistivity	ohm metre (Ω m)
3. Current	ampere (A)
4. Resistance	ohm (Ω)
5. Charge	coulomb (C)

E. Answer the following questions.

Very short answer questions

1. The electric 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. We know, $V = W Q$

$$30\ V = \frac{W}{6\ C}$$

or, $W = 180$ J

Short answer questions

1. A circuit is called 'open' when current flowing in the ciruit is zero, i.e. there is no continuous connection between two terminals.
2. The main disadvantage of series circuit is that if one device (resistor) fails, the current in the whole circuit ceases to flow.

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Long answer questions

1. Differences between a primary cell and a secondary cell.

Parameter	Primary cell	Secondary cell
1. Distance between particles	It is that part of a longitudinal wave in which the particles of the medium are closer to one another than in their normal state.	It is that part of a longitudinal wave in which the particles of the medium are farther apart than in their normal state.
2. Volume of the medium	There is a momentary decrease in the volume of the medium.	There is a momentary increase in the volume of the medium.
3. Density of the particles	The density of the particles of the medium is higher than the normal density.	The density of the particles of the medium is lesser than the normal density.

2. Technology has brought about a revolution in the modern world. Technology enabled us to produce goods and machines which made our life easy and fast. But extensive use of technology for producing more machines and goods led to degradation of the environment. Excessive emission of gases like carbon dioxide and carbon monoxide by industries and automobiles, directly resulted in air pollution.

   Similarly, water and noise pollution is also the adverse result of technology. Unchecked technological advancement also leads to depletion of natural resources, ecological imbalance, deforestation, etc.

   Scientists now have developed technologies that do not damage the environment. Such technologies are called eco-friendly technologies. Such technologies use renewable sources of energy (which are everlasting and abundant in our environment). They do not cause pollution, produce less or no waste and are energy efficient. Eco-friendly technology products also help to make our earth a better place to live as they cause minimum harm to people and our environment. For example, when we use traditional incandescent light bulbs which operates at 20% energy efficiency only, its 80% of the electricity is lost as heat. LED lighting is energy efficient up to 80%. This means, about 80% of the electrical energy is converted to light and only 20% is lost and converted into heat. It has outstanding operational life, i.e. up to 100,000 hours. If you use LED light for 8 hours per day, it would take around 20 years before you need to replace it (minimum use of resources). Besides this, LED lights are free of toxic chemicals and are 100% recyclable. Also, LED lights can be switched off and on frequently whereas traditional light bulbs may take a few seconds to reach full brightness.

   Nowadays, several products like heaters, airconditioners, etc. display star labels – an energy efficiency rating scheme that make the consumer aware about the energy saving potential among the available products. The more the number of stars – more the savings of energy and money.

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