Work Sheet - 1 **Name of the Student:-_____**

PHYSICS **Class :- 10 Sec _____**

Current Electricity

1. Define 'Current'. Write its mathematical expression and S.I unit.

2. Define 'Potential' and 'Potential Difference'. Write the mathematical expressions and S.I units.

3. What is resistance? What is the cause of resistance? State and explain the factors affecting the resistance of a conductor. Write the S.I unit of resistance.

Work Sheet - 2 **Name of the Student:-_____**

PHYSICS **Class :- 10 Sec _____**

Current Electricity

1. Define conductance and write its S.I unit.

2. State Ohm's law. Write its mathematical expression and its limitation.

3. Draw a circuit diagram for the experimental verification of Ohm's law.

4. What are Ohmic and Non – Ohmic conductors? Draw a V – I and I – V graph for an Ohmic and Non – Ohmic conductor.

Work Sheet - 3 **Name of the Student:-_____**

ICSE – PHYSICS **Class :- 10 Sec _____ Academic Year:-**

Current Electricity

1. Define resistivity/specific resistance. Write its mathematical expression and S.I unit. State and explain the factors affecting resistivity.

2. Define conductivity. Write its mathematical expression and S.I unit.

3. Explain the variation of resistance and resistivity with temperature for metals, alloys and semiconductors.

Work Sheet - **Name of the Student:-_____**

PHYSICS **Class :- 10 Sec _____**

Current Electricity

Numerical on current, p.d, Ohm's law and resistivity.

1. Find the p.d required to pass a current of 0.2A in a wire of resistance 20ohm.

2. An electric bulb draws 1.2A current at 6V. Find the resistance of the filament of the bulb.

3. A car bulb of resistance 2ohm is connected to a battery of 4V. Find the current.

4. In an Ohm's law experiment following data was obtained-

p.d V(in volt)	.5	1	1.5	2	2.5
Current I(ampere)	.2	.4	.6	.8	1

Draw a V – I graph and use it to find -
i) p.d when current is .5A.
ii) current when p.d is .75V
iii) resistance in the circuit.

5. Two wires of same material and same length have radii r1 and r2. Compare their resistances and resistivity.

6. A wire of 3ohm and 10cm is stretched to 30cm. Find its new resistance.

7. A wire of 9ohm and 30cm is tripled on itself. Find its new resistance.

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Work Sheet - 5 **Name of the Student:-_____**

ICSE – PHYSICS **Class :- 10 Sec _____ Academic Year:-**

Current Electricity

1. Define Electro-motive force. State the factors affecting emf. Write its mathematical expression and S.I unit.

2. Define terminal voltage. Write its mathematical expression and S.I unit.

3. Define potential drop. Write its mathematical expression and S.I unit.

4. Write a mathematical relation relating emf, terminal voltage and potential drop.

5. Define internal resistance of a cell. State and explain the factors effecting the internal resistance of a cell.

Work Sheet - 6 **Name of the Student:-_____**

ICSE – PHYSICS **Class :- 10 Sec _____ Academic Year:-**

Current Electricity

1. For combination of resistances in series derive the following - $R_P = R_1 + R_2$

2. For combination of resistances in parallel derive the following - $1/R_P = 1/R_1 + 1/R_2$

Work Sheet **Name of the Student:-_____**

PHYSICS **Class :- 10 Sec _____**

Current Electricity

1. Define the emf (E) of a cell and the p.d (V) across a resistor (R) in term of the work done in moving a unit charge. State the relation between these two works and the work done in moving a unit charge through a cell connected across the resistor. Take the internal resistance of the cell as 'r'. Hence obtain an expression for the current 'I' in the circuit. [2001] [4]

2. A cell of emf 1.5 V and internal resistance 10 ohms is connected to a resistor of 5 ohms, with an ammeter in series. What is the reading in the ammeter? [2002] [2]

3. Four cells, each of emf 1.5 V and internal resistance 2 ohms are connected in parallel. The battery of cells is connected to an external resistance of 2.5 ohms. Calculate :- [2002]

i) the total resistance of the circuit

ii) the current flowing in the external circuit

iii) the drop of potential across the terminals of the cells.

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Work Sheet - 8 **Name of the Student:-_____**

ICSE – PHYSICS **Class :- 10 Sec _____ Academic Year:-**

Current Electricity

1. Mention two factors on which the internal resistance of a cell depends. [2004] [2]

2. Name two substances whose resistance i) increases, ii) decreases, iii) remains same; when they are heated. [2]

3. A wire is stretched to four times its original length. Find its new resistance. [2]

4. Write the condition when the emf and terminal voltage of a cell are same. [2]

5. Write two characteristics each of series and parallel connections. [2]

6. Four resistance of 2ohm each are joined end to end to form a square ABCD. Calculate the equivalent resistance of the combination between any two adjacent corners.[2005] [2]