**DAV PUBLIC SCHOOL, SEC- 14, GURGAON**

**ASSIGNMENT (PHYSICS)**

**CLASS X**

**ELECTRIC CURRENT**

1. Calculate the work done in moving a charge of 4 coulombs from a point at 220volts to another point at 230volts.
2. If the charge on an electron is 1.6 x 10-19 coulombs, how many electrons should pass through a conductor in 1 second to constitute 1 ampere current?
3. In 10 second, a charge of 25 C leaves a battery and 200 J of energy are delivered to an outside circuit as a result. What is the p.d. across the battery? What current flows from the battery?
4. A current of 200 mA flows through a 40 KΩ resistor. What is the p.d. across the resistor?
5. A 4 Ω wire is doubled on it. Calculate the new resistance of the wire.
6. How does the resistance of a wire change when:
7. Its length is tripled?
8. Its diameter is tripled?
9. Its material is changed to one whose resistivity is three times?
10. A torch bulb when cold has 1 Ω resistance. It draws a current of 0.3 A when glowing from a source of 3V. Calculate the resistance of a bulb when glowing and explain the reason for the difference in resistance.
11. The p.d. between the terminals of an electric heater is 60V when it draws a current of 4A from the source. What current will the heater draw if the p.d. is increased to 120V/
12. In an experiment to study the relationship between the potential difference across a resistor and the current through it a student recorded the following observations:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Potential difference (V) | 2 | 3 | 4.5 | 5 | 6 |
| Current (A) | 0.08 | 0.12 | 0.15 | 0.20 | 0.24 |

Find in which one of the above sets of reading the trend is different from others and must be rejected. Calculate the mean value of resistance of the resistor based on the remaining sets of readings.

1. Calculate the resistance of 1 Km long wire of radius 1 mm .Resistivity of copper is 1.72 x 10—8 Ω m.
2. Two copper wires A and B of length 30 m and 10 m have radii 2cm and 1 cm respectively. Compare the resistance of the two wires. Which will have less resistance?
3. A child has drawn the circuit diagram to study Ohm’s law as shown in figure. His teacher told him that the circuit diagram needs correction. Study the circuit diagram and redraw it after making all corrections.