

Worksheet - Electricity

1. Short questions:
 - a. What is relation between KWH and Joule?
 - b. The Flow of electron constitutes the electric current in the wire. True or false?
 - c. A voltmeter has high resistance and it is connected in parallel. True or false?
 - d. What is resistance of the conductor?
 - e. What is the SI unit of resistivity?
 - f. What are the applications of chemical effect of current?
 - g. What is same across the parallel combination of resistors Voltage or current?
 - h. What is critical temperature in metals?
2. Why does the cord of an electric heater not glow while heating element does?
3. Why do we use copper wire as connecting wires in the circuit?
4. Wire of length 3 m and area of cross-section $1.7 \times 10^{-6} \text{ m}^2$ has a resistance $3 \times 10^{-2} \text{ ohm}$.
 - a. What is the formula for resistivity of the wire and what is the unit of it
 - b. Calculate the resistivity of the wire.
5. There are m resistor each of resistance R . First they all are connected in series and equivalent resistance is X . Now they are connected in parallel and equivalent resistance is Y . What is the ratio of X and Y ?
6. An electric bulb draws a current of .8 A and works on 250 V on the average 8 hours a day.
 - a. Find the power consumed by the bulb
 - b. If the electric distribution company charges Rs 5 for 6 KWH, what is the monthly bill for 60 days
7. How can three resistors of resistances 2Ω , 3Ω and 6Ω be connected to give a total resistance of (a) 4Ω , (b) 1Ω ?
8. An electric lamp of 100Ω , a toaster of resistance 50Ω , and a water filter of resistance 500Ω are connected in parallel to a 220 V source. What is the resistance of an electric iron connected to the same source that takes as much current as all three appliances and what is the current through it?
9. State Ohm's law. How can it be verified experimentally? Does it hold good in all conditions?
Comment.
10. How do we connect ammeter and voltmeter in an electric circuit? Draw a circuit diagram to justify your answer. What is likely to happen if the positions of these instruments are interchanged? Give reason.
11. Three resistors of 1Ω , 2Ω and 3Ω are connected in parallel in a circuit. If 1Ω resistor draw a current of 1 A, find the current through the other two resistors.
12.
 - a. What is meant by electric current? Name and define its SI unit.
 - b. In a conductor electrons are flowing from B to A. What is the direction of conventional current? Give justification for your answer.
 - c. A steady current of 1 ampere flows through a conductor. Calculate the number of electrons that flow through any section of the conductor in 1 second.
13.
 - (a) What is heating effect of current? List two electrical appliances which work on this effect.
 - (b) An electric bulb is connected to a 220 V generator. If the current drawn by the bulb is 0.50 A; find its power.
 - (c) An electric refrigerator rated 400 W operates eight hours a day. Calculate the energy per day in kWh.
 - (d) State the difference between kilowatt and kilowatt hour.
 - e) Why is the series arrangement of appliances not used for domestic circuits?
14. You have two electric lamps having rating 40 W; 220 V and 60 W; 220 V. Which of the two has a higher resistance? Give reason for your answer. If these two lamps are connected to a source of 220 V, which will glow brighter?