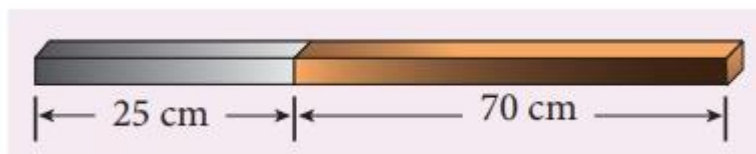


CLASS-XII PHYSICS WORKSHEET

CHAPTER -3

CURRENT ELECTRICITY

1. A copper wire of 10^{-6} m^2 area of cross section, carries a current of 2 A. If the number of electrons per cubic meter is 8×10^{28} , calculate the current density and average drift velocity.
2. The resistance of a nichrome wire at 0°C is 10Ω . If its temperature coefficient of resistance is $0.004/^\circ\text{C}$, find its resistance at boiling point of water. Comment on the result.
3. The rod given in the figure is made up of two different materials.



- Both have square cross sections of 3 mm side. The resistivity of the first material is $4 \times 10^{-3} \Omega \cdot \text{m}$ and it is 25 cm long while second material has resistivity of $5 \times 10^{-3} \Omega \cdot \text{m}$ and is of 70 cm long. What is the resistivity of rod between its ends?
4. A cell supplies a current of 0.9 A through a 2Ω resistor and a current of 0.3 A through a 7Ω resistor. Calculate the internal resistance of the cell.
 5. If an electric field of magnitude 570 N/C , is applied in the copper wire, find the acceleration experienced by the electron.
 6. A copper wire of cross-sectional area 0.5 mm^2 carries a current of 0.2 A. If the free electron density of copper is $8.4 \times 10^{28} \text{ m}^{-3}$ then compute the drift velocity of free electrons.
 7. Determine the number of electrons flowing per second through a conductor, when a current of 32 A flows through it.
 8. The resistance of a wire is 20Ω . What will be new resistance, if it is stretched uniformly 8 times its original length?
 9. If the resistance of coil is 3Ω at 20°C and $\alpha = 0.004/^\circ\text{C}$ then determine its resistance at 100°C .
 10. Resistance of a material at 10°C and 40°C are 45Ω and 85Ω respectively. Find its temperature coefficient of resistance.