

Don Bosco School
Alaknanda
Assignment
Topic – Electricity

CLASS - 10
PHYSICS

- Q 1. Calculate the amount of work done to carry 4 C of charge from a point at 100 V to a point at 120 V .
- Q2. A torch bulb when cold has 1 ohm resistance. It draws a current of 0.3 A, when glowing from a source of 3 V. Calculate the resistance of the bulb when glowing and explain the reason for the difference in resistance.
- Q3. The resistance of a wire of the length 80 cm and of uniform area of cross- section 0.025 cm^2 , is found to be 1.5Ω . Calculate the resistivity of the wire.
- Q4. Two copper wires A and B of length 30 m and 10 m have radii 2 cm and 1 cm respectively. Compare the resistance of the two wires. Which will have less resistance?
- Q4. Why are coils of electric toasters and electric irons made of an alloy rather than a pure metal?
- Q5. How can three resistors of resistance 2Ω , 3Ω and 6Ω be connected to give a total resistance of (a) 4Ω (b) 1Ω
- Q6. What is (a) the highest (b) the lowest total resistance that can be secured by combination of four coils of resistance 4Ω , 8Ω , 12Ω and 24Ω .
- Q7. An electric motor takes 5 A from a 220 V line. Determine the power and energy consumed in 2 h.
- Q8. Two lamps one rated 100 W at 220 V, and the other 60 W at 220 V are connected in parallel to the electric mains supply. What current is drawn from the line if the supply voltage is 220 V?
- Q9. An electric heater of resistance 8Ω draws 15 A from the service mains for 2 hours. Calculate the rate at which heat is developed in the heater (power).
- Q10. In fig. 1, $R_1 = 10 \Omega$ and $R_2 = 40 \Omega$ and $R_3 = 30 \Omega$, $R_4 = 20 \Omega$, $R_5 = 60 \Omega$ and a 12 V battery is connected to the arrangement, calculate (a) the total resistance and (b) the total current flowing in the circuit.
- Q11. Three resistors are connected as shown in fig. 2 through the resistor of 5Ω , a current of 1 A is flowing.
- (a) What is the potential difference across AB and across AC?
- (b) What is the current through the other two resistors?
- (c) What is the total resistance?
- Q.12 A 24 volt battery is connected to the arrangement of resistance shown in fig. 3. Calculate (a) the total effective resistance of the circuit, (b) the total current flowing in the circuit.

Q13. Calculate the equivalent resistance between the points A and B in the circuit shown in fig. 4(a) & 4(b)

