



ST. LAWRENCE HIGH SCHOOL
A JESUIT CHRISTIAN MINORITY INSTITUTION



WORK SHEET 11

Subject : PHYSICS

CLASS : XII

Date : 9.6.20

Chapter : Current Electricity

Topic : Current, ohm's law, resistance, conductance, temp. dependence of R , series and parallel combination of R .

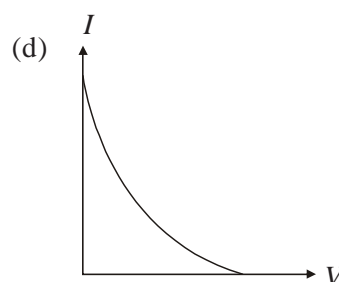
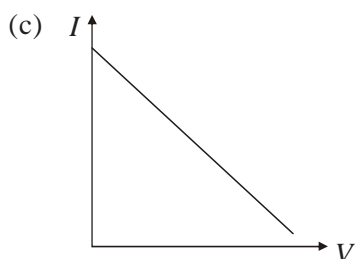
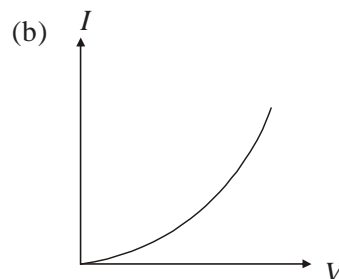
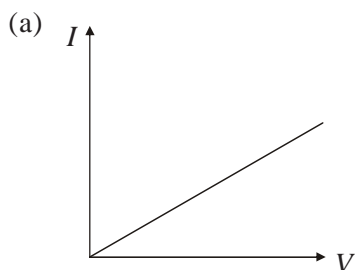
Multiple Choice Question :

1 x 15 = 15

1. The current in a conductor varies with time t as $I = 2t + 3t^2$, where I is in ampere and t in second. Electric charge flowing through a section of the conductor during $t = 2$ s to $t = 3$ s is

(a) 10 C (b) 24 C (c) 33 C (d) 44 C

2. Which of the following graphs represents the variation of current (I) through a metallic conductor with its terminal potential difference (V)?



3. The dimension of resistance is

(a) $ML^2T^{-3}I^{-1}$ (b) $ML^2T^{-1}I^{-1}$ (c) $ML^2T^{-3}I^{-2}$ (d) $ML^2T^{-1}I^{-2}$

4. Resistivity of copper is $1.76 \times 10^{-6} \Omega \cdot \text{cm}$. What will be the resistance between two opposite faces of a copper cube of side 1 m?

(a) $1.76 \times 10^{-4} \Omega$ (b) $1.76 \times 10^{-6} \Omega$ (c) $1.76 \times 10^{-8} \Omega$ (d) $1.76 \times 10^{-12} \Omega$

5. A wire of resistance 4Ω is bent through 180° at its mid point and the two halves are twisted together. Then the resistance is

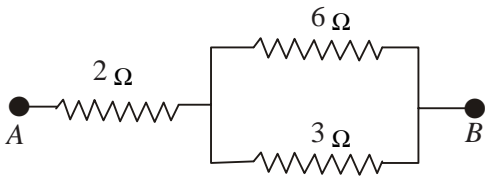
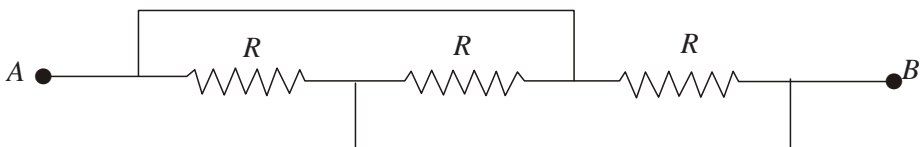
(a) 1Ω (b) 2Ω (c) 5Ω (d) 8Ω

6. The resistance of a wire is 5Ω at 50°C and 6Ω at 100°C . The resistance of the wire at 0°C will be

(a) 1Ω (b) 2Ω (c) 3Ω (d) 4Ω

7. The temperature coefficient of resistance of a metal is 0.004°C^{-1} . If a wire of this metal has resistance 1Ω at 0°C then what will be the value of that resistance at 100°C ?

(a) 0.6Ω (b) 0.96Ω (c) 1.04Ω (d) 1.4Ω

8. If three resistances, connected in series, are related as $R_1 > R_2 > R_3$, then what is the relation between the currents flowing through them?
- (a) $I_1 = I_2 = I_3$ (b) $I_1 > I_2 > I_3$ (c) $I_1 < I_2 < I_3$ (d) $I_1 > I_3 > I_2$
9. Two resistances of $6\ \Omega$ and $3\ \Omega$ are connected in parallel and this combination is connected to a battery of emf 2 V . What will be the current flowing through the 6 ohm resistance?
- (a) $\frac{1}{3}\text{ A}$ (b) $\frac{2}{3}\text{ A}$ (c) 1 A (d) 2 A
10. A uniform metal wire of resistance R is stretched to twice its length. Now this wire is halved, and the two halves are connected in parallel. The equivalent resistance is
- (a) $\frac{R}{2}$ (b) R (c) $2R$ (d) $4R$
11. The equivalent resistance between the points A and B is
- 
- (a) $3\ \Omega$ (b) $4\ \Omega$ (c) $6\ \Omega$ (d) $11\ \Omega$
12. The resistance across A and B in the Fig. below will be
- 
- (a) $3R$ (b) R (c) $\frac{R}{3}$ (d) None of the above
13. A set of n identical resistors, each of resistance R ohm when connected in series, has effective resistance X ohm and when connected in parallel the effective resistance is Y ohm. The relation between R , X and Y is given by
- (a) $R = \sqrt{XY}$ (b) $R = Y\sqrt{X}$ (c) $R = X\sqrt{Y}$ (d) $\sqrt{R} = XY$
14. In which material, electric currents develop when an electric field is applied?
- (a) Conductor (b) Wooden piece (c) Non-conductor (d) Insulator
15. A wire is stretched so as to change its diameter by 0.25% . The percentage change in resistance is
- (a) 4.0% (b) 2.0% (c) 1.0% (d) 0.5%

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