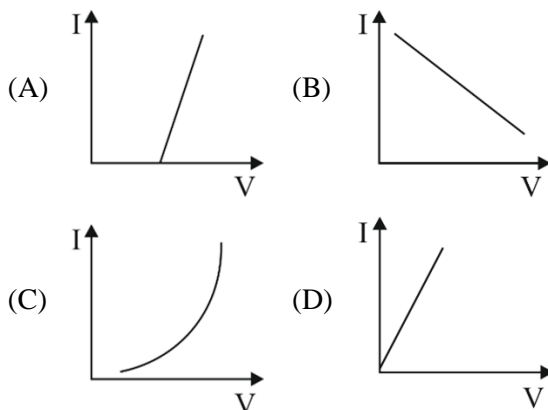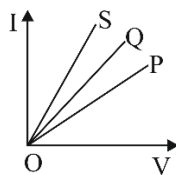# UDAAN 3.0 2024

Electricity

DHA-02
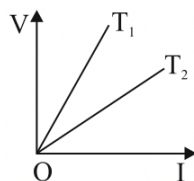
1. The plot which shows the dependence of current (I) on potential difference (V) across a resistance R is

2. The V - I graph of three resistance P, Q and S are as shown in figure. Which resistance has maximum resistance?
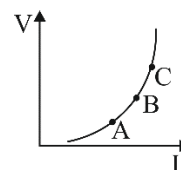

(A) P
(B) Q
(C) S
(D) All have equal resistance

3. The V-I graphs of a metallic conductor at temperatures T_1 and T_2 are shown in figure. We may conclude.

(A) $T_1 = T_2$
(B) $T_1 > T_2$
(C) $T_1 < T_2$
(D) T_1 and T_2 cannot be compared

4. The V-I graph of a resistor is shown in figure. If the resistance is determined at points A, B and C then it is found that resistance at

(A) A, B and C are equal
(B) C is lower than that at B
(C) B is lower than that at A
(D) B is higher than that at A

5. A wire is drawn such that its radius changed from r to 2r, the new resistance is :
(A) 1/4 times   (B) 4 times
(C) 8 times   (D) 1/16 times

6. SI unit of specific resistance is
(A) Ω (B) Ω m
(C) Ω m^{-1} (D) Ω m^{-2}

7. If a wire of resistance 5 Ω is stretched to three times its length, its resistance will become
(A) 5/3 Ω (B) 15 Ω
(C) 35 Ω (D) 45 Ω

8. The resistivity of a wire
(A) Varies with length
(B) Varies with its cross-section
(C) Varies with its mass
(D) is independent of length, cross section and mass of the wire

Note: Kindly find the Video Solution of DHAs Questions in the DPPs Section.

ANSWER KEY

1.   (D)
2.   (A)
3.   (B)
4.   (D)
5.   (D)
6.   (B)
7.   (D)
8.   (D)

Hint and Solutions

1. (D)

As per Ohm's law, current(I) flowing through a conductor and the potential difference(V) applied across it are linearly related.

2. (A)

Slope of I-V graph gives reciprocal of resistance.

3. (B)

Slope of V-I graph gives resistance. Also, resistance of a metallic conductor increases with increase in temperature.

4. (D)

Slope of V-I graph gives resistance.

5. (D)

Use Resistance $(R) = \rho \dfrac{l}{A}$. Also, volume of the wire will remain constant.

6. (B)

Use Resistance $(R) = \rho \dfrac{l}{A}$.

7. (D)

Use Resistance $(R) = \rho \dfrac{l}{A}$. Also, volume of the wire will remain constant.

8. (D)

Resistivity of a wire is a fundamental property.