



Video Solution on Website:-

<https://physicsaholics.com/home/courseDetails/55>

Video Solution on YouTube:-

<https://youtu.be/sNlx07gM4Z4>

Written Solution on Website:-

<https://physicsaholics.com/note/notesDetails/52>

- Q 1. A rectangular metal block has dimensions $3\text{cm} \times 1\text{cm} \times 1\text{cm}$. The ratio of the resistance measured between the two opposite rectangular faces to that measured between the two square faces of the block is:
- (a) 1:3 (b) 1:9
(c) 3:1 (d) 9:1
- Q 2. The resistance of a wire of uniform diameter d and length L is R . The resistance of another wire of the same material but diameter $2d$ and length $4L$ will be:
- (a) $2R$ (b) R
(c) $R/2$ (d) $R/8$
- Q 3. The resistance of a wire of length 300m and cross-section area 1.0mm^2 made of material of resistivity $1.0 \times 10^{-7}\Omega\text{m}$ is:
- (a) 2Ω (b) 3Ω
(c) 20Ω (d) 30Ω
- Q 4. Calculate the resistivity of the material of a wire 1m long, 0.4mm in diameter and having a resistance 2Ω :
- (a) $300\Omega\text{m}$ (b) $2.51 \times 10^{-7}\Omega\text{m}$
(c) $2 \times 10^7\Omega\text{m}$ (d) $1 \times 10^{-15}\Omega\text{m}$
- Q 5. A wire has a resistance of 10ohm . Its resistance if it is stretched by one-tenth of its original length is:
- (a) 12.1Ω (b) 7.9Ω
(c) 11Ω (d) 9Ω
- Q 6. A wire of 10Ω resistance is stretched to thrice its original length. What will be its new resistivity:
- (a) Three times of initial resistivity
(b) one-third of initial resistivity
(c) Equal to initial resistivity
(d) None of these
- Q 7. If n , e , τ and m respectively represent the density, charge relaxation time and mass of the electron, then the resistance of a wire of length l and area of cross-section A will be:
- (a) $\frac{ml}{ne^2\tau A}$ (b) $\frac{m\tau^2 A}{ne^2 l}$



(c) $\frac{ne^2\tau A}{2ml}$

(d) $\frac{ne^2A}{2m\tau l}$

- Q 8. On increasing the temperature of a conductor, its resistance increases because:
(a) Relaxation time decreases
(b) Mass of the electrons increases
(c) Electron density decreases
(d) None of the above
- Q 9. The resistance of a wire is 5 ohm at 50 °C and 6 ohm at 100 °C. The resistance of the wire at 0 °C will be:
(a) 1 ohm
(b) 2 ohm
(c) 3 ohm
(d) 4 ohm
- Q 10. The resistance of a semiconductor material (germanium or silicon) _____ with rise in temperature.
(a) increases
(b) decreases
(c) Remains the same
(d) first increases then decreases
- Q 11. A nichrome wire of length 100cm and radius 0.36 mm has a resistance of 1.5 ohm. Calculate the conductivity of nichrome (in mho):
(a) 1.6×10^6
(b) 16×10^6
(c) 1.6×10^5
(d) 1.6×10^7

Answer Key

Q.1 b	Q.2 b	Q.3 d	Q.4 b	Q.5 a
Q.6 c	Q.7 a	Q.8 a	Q.9 d	Q.10 b
Q.11 a				