

# MCQs on Class 12 Chapter 3 Current Electricity

For the Class 12 Physics Current Electricity Chapter 3, we have provided multiple-choice questions (MCQs) with four options each. Only one option is correct, and students need to select the correct answer from the given options.

**Q. The SI unit of electric current is**

- a) Volt
- b) Coulomb
- c) Ohm
- d) Ampere

**Answer:** d) Ampere

**Q. Which of the following is true for a series circuit?**

- a) The current is the same through each resistor.
- b) The voltage is the same across each resistor.
- c) The power is the same across each resistor.
- d) The resistance is the same across each resistor.

**Answer:** a) The current is the same through each resistor.

**Q. Ohm's law is valid for**

- a) Semiconductors
- b) Conductors
- c) Insulators
- d) Non-ohmic materials

**Answer:** b) Conductors

**Q. The resistance of a wire depends on**

- a) Length of the wire
- b) Area of cross-section
- c) Material of the wire
- d) All of the above

**Answer:** d) All of the above

**Q. Kirchhoff's first law deals with the conservation of**

- a) Energy
- b) Charge
- c) Momentum
- d) Mass

**Answer:** b) Charge

**Q. If the potential difference across a resistor is doubled, the current will**

- a) Be halved
- b) Double
- c) Remain the same
- d) Be quadrupled

**Answer:** b) Double

**Q. Which material has the least resistivity?**

- a) Copper
- b) Iron
- c) Mercury
- d) Nichrome

**Answer:** a) Copper

**Q. The reciprocal of resistivity is:**

- a) Conductance
- b) Conductivity
- c) Resistance
- d) Permittivity

**Answer:** b) Conductivity

**Q. A voltmeter is used to measure**

- a) Current
- b) Voltage
- c) Resistance
- d) Capacitance

**Answer:** b) Voltage

**Q. The unit of electric power is:**

- a) Joule
- b) Watt
- c) Ampere
- d) Coulomb

**Answer:** b) Watt

**Q. The drift velocity of electrons in a conductor is:**

- a) Directly proportional to the length of the conductor
- b) Directly proportional to the electric field
- c) Inversely proportional to the electric field
- d) Inversely proportional to the length of the conductor

**Answer:** b) Directly proportional to the electric field

**Q. The power dissipated in a resistor is given by:**

- a)  $I^2R$
- b)  $IR^2$
- c)  $IR$
- d)  $I/R$

**Answer:** a)  $I^2R$

**Q. In a parallel circuit, the total resistance is:**

- a) Less than the smallest individual resistance
- b) The sum of all individual resistances
- c) Equal to the largest individual resistance
- d) More than the largest individual resistance

**Answer:** a) Less than the smallest individual resistance

**Q. The device used to measure electric current is:**

- a) Voltmeter
- b) Ammeter
- c) Ohmmeter
- d) Wattmeter

**Answer:** b) Ammeter

**Q. Which of the following metals is used for making standard resistors?**

- a) Copper
- b) Iron
- c) Manganin
- d) Silver

**Answer:** c) Manganin

**Q. The resistance of a conductor increases with:**

- a) Increase in temperature
- b) Decrease in temperature
- c) Increase in length
- d) Decrease in length

**Answer:** a) Increase in temperature

**Q. The unit of resistivity is:**

- a) Ohm
- b) Ohm meter
- c) Siemens
- d) Siemens per meter

**Answer:** b) Ohm meter

**Q. The time constant of an RC circuit is:**

- a)  $R + C$
- b)  $R/C$
- c)  $RC$
- d)  $1/RC$

**Answer:** c)  $RC$

**Q. For a given current, power dissipation is least in which type of resistor?**

- a) High resistance
- b) Low resistance
- c) Medium resistance
- d) Zero resistance

**Answer:** a) High resistance

**Q. The potential difference across a superconductor is:**

- a) Zero
- b) Infinite
- c) Depends on the current
- d) Depends on the temperature

**Answer:** a) Zero

**Q. If the length of a wire is doubled, its resistance will:**

- a) Be halved
- b) Double
- c) Remain the same
- d) Be quadrupled

**Answer:** b) Double

**Q. In an ohmic conductor, the current is:**

- a) Directly proportional to voltage
- b) Inversely proportional to voltage
- c) Proportional to the square of voltage
- d) Proportional to the square root of voltage

**Answer:** a) Directly proportional to voltage

**Q. A resistor with a resistance of 5 ohms is connected across a 10V battery. The current flowing through the resistor is:**

- a) 0.5 A
- b) 1 A
- c) 2 A
- d) 5 A

**Answer:** b) 2 A

**Q. The unit of electrical conductivity is:**

- a) Ohm meter
- b) Siemens
- c) Ohm
- d) Siemens per meter

**Answer:** d) Siemens per meter

**Q. The resistivity of a semiconductor:**

- a) Decreases with increase in temperature
- b) Increases with increase in temperature
- c) Remains constant
- d) Is zero at room temperature

**Answer:** a) Decreases with increase in temperature

**Q. The reciprocal of resistance is called:**

- a) Conductance
- b) Resistivity
- c) Conductivity
- d) Permittivity

**Answer:** a) Conductance

**Q. Which of the following is a non-ohmic device?**

- a) Diode
- b) Resistor
- c) Capacitor
- d) Inductor

**Answer:** a) Diode

**Q. In a series circuit, the total voltage is:**

- a) The same across each component
- b) The sum of the voltages across each component
- c) Zero
- d) Infinite

**Answer:** b) The sum of the voltages across each component

**Q. The power supplied by a battery is given by:**

- a)  $V^2/R$
- b)  $VI$
- c)  $I^2R$
- d)  $V/R$

**Answer:** b)  $VI$

**Q. A material with high resistivity is:**

- a) Good conductor
- b) Poor conductor
- c) Superconductor
- d) Semiconductor

**Answer:** b) Poor conductor