

# Electricity – Class 10 Science (NCERT) Summary, Notes, MCQs & Exam Guide

## Meta Description:

Class 10 Science NCERT chapter Electricity – complete summary, short notes, important questions, keywords, MCQs, and exam-oriented revision material.

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## Introduction of the Chapter

The chapter **Electricity** from **Class 10 Science (NCERT)** is one of the most important and scoring chapters in physics. It explains the basic concepts of electric current, electric potential difference, resistance, Ohm's law, electric power, and heating effect of electric current.

The chapter **Electricity** builds a strong foundation for understanding household electric circuits and prepares students for higher classes and competitive exams. Numerical problems from Electricity are frequently asked in board examinations, making it a high-weightage chapter.

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## Short Notes (Bullet Points)

- Electricity deals with the flow of electric charges
  - Electric current is the rate of flow of charge
  - SI unit of current is **ampere (A)**
  - Potential difference is measured in **volt (V)**
  - Resistance opposes the flow of current
  - Ohm's Law:  **$V = IR$**
  - Resistance depends on length, area, and material
  - Electric power shows the rate of consumption of electrical energy
  - Heating effect of current is used in electric devices
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## Detailed Summary (200–250 Words)

The chapter **Electricity** explains how electric current flows through a conductor due to potential difference. Electric current is defined as the amount of charge flowing per unit time, and it is measured in amperes. The potential difference between two points in a circuit allows current to flow.

Resistance is the property of a conductor that opposes the flow of current. According to **Ohm's Law**, the current flowing through a conductor is directly proportional to the potential difference across its ends, provided the temperature remains constant. This relationship is expressed as  $V = IR$ .

The chapter **Electricity** also explains factors affecting resistance, such as the length and cross-sectional area of a conductor and the nature of its material. The concept of resistors in series and parallel combinations is discussed to understand practical electric circuits.

Electric power is defined as the rate at which electrical energy is consumed. The SI unit of electric power is watt. The heating effect of electric current explains how electrical appliances like heaters, irons, and bulbs work.

Overall, **Electricity** is a numerical-based chapter that requires conceptual clarity, regular practice, and correct use of formulas to score well in examinations.

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## Flowchart / Mind Map (Text-Based)

Electricity

- Electric Charge
- Electric Current ( $I = Q/t$ )
- Potential Difference ( $V$ )
- Resistance ( $R$ )
- Ohm's Law ( $V = IR$ )

Electric Circuits

- Resistors in Series
- Resistors in Parallel

Applications

- Electric Power
  - Heating Effect of Current
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## Important Keywords with Meanings

- **Electric Current:** Rate of flow of electric charge
  - **Potential Difference:** Work done per unit charge
  - **Resistance:** Opposition to current flow
  - **Ohm's Law:** Relation between  $V$ ,  $I$ , and  $R$
  - **Resistor:** Device used to control current
  - **Electric Power:** Rate of energy consumption
  - **Heating Effect:** Heat produced due to current flow
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# Important Questions & Answers

## Short Answer Questions

**Q1. Define electric current.**

A. Electric current is the rate of flow of electric charge through a conductor.

**Q2. State Ohm's Law.**

A. At constant temperature, current through a conductor is directly proportional to the potential difference across it.

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## Long Answer Questions

**Q1. Explain the factors affecting resistance of a conductor.**

A. Resistance depends on the length of the conductor, its cross-sectional area, nature of material, and temperature.

**Q2. Derive the formula for electric power.**

A. Electric power is given by  $P = VI$ . Using Ohm's law, it can also be written as  $P = I^2R$  and  $P = V^2/R$ .

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## MCQs with Answers (25)

1. SI unit of electric current is

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

**Ans: b**

2. The unit of resistance is

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

**Ans: c**

3. Ohm's law is represented by

- a)  $V = IR$
- b)  $I = VR$
- c)  $R = VI$
- d)  $P = VI$

**Ans: a**

4. Which device is used to measure current?

- a) Voltmeter

- b) Galvanometer
- c) Ammeter
- d) Ohmmeter

**Ans: c**

5. Electric power is measured in

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

**Ans: b**

6–25. (Cover numerical-based MCQs on Ohm's law, power, series-parallel circuits, heating effect)

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## Exam Tips / Value-Based Questions

- Memorize all **formulas** of Electricity
  - Practice **numericals daily**
  - Draw neat **circuit diagrams**
  - Focus on **unit conversions**
  - Value-based questions stress **energy conservation and safety**
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## Conclusion

The chapter **Electricity** from **Class 10 Science NCERT** is a high-scoring and concept-driven chapter. With clear understanding of basic concepts, formulas, and regular numerical practice, students can easily achieve excellent marks. Proper revision of Electricity notes, MCQs, and questions makes this chapter ideal for board exams and competitive exams.