

Important Topics of Physics

Class-XII

Chapter 1 – Electronic Charges and Field

Important Topics:

1. Coulomb's Law
2. Forces between multiple charges electric field due to system of charges
3. Electric dipole's electric field on axial and equatorial point
4. Electric dipole in external electric field
5. Gauss's law applications

Chapter 2 – Electrostatic Potential and Capacitance

Important Topics:

1. Potential due to electric dipole and system of charges
2. Electric potential energy due to electric dipole and system of charges
3. Equipotential surfaces
4. Effect of dielectric on capacitors
5. Combinations of capacitors
6. Energy stored in capacitors

Chapter 3 – Current Electricity

Important Topics:

1. Ohm's Law
2. Limitations of ohm's law
3. Resistivity of different materials
4. Combination of resistors
5. Combination of cells
6. Kirchhoff's law
7. Meter bridge
8. Potentiometer

Chapter 4 – Moving Charges and Magnetism

Important Topics:

1. Magnetic force on current carrying wire
2. Motion in a magnetic field
3. Velocity selector
4. Cyclotron
5. Magnetic field on axis of circular current carrying loop
6. Ampere's circuital law
7. Force between two parallel current carrying wires
8. Torque on current carrying loop in magnetic field
9. Moving coil galvanometer

Chapter 5 – Magnetism and Matter

Important Topics:

1. Axial magnetic field of bar magnet as solenoid
2. Electric dipole in uniform magnetic field
3. Diamagnetic, Paramagnetic, Ferromagnetic Substances
4. Hysteresis Loop

Chapter 6 – Electromagnetic Induction

Important Topics:

1. Magnetic flux
2. Faraday's law of induction
3. Lens law
4. Motional EMF
5. Self inductance and mutual inductance

Chapter 7 – Alternating Current

Important Topics:

1. RC, LC, LR and LCR Circuits
2. LC oscillations
3. Power factor

4. Resonance and Sharpness
5. Transformers

Chapter 8 – Electromagnetic Waves

Important Topics:

1. Displacement Current
2. EM waves
3. Nature of em waves

Chapter 9 – Ray Optics and Optical Instruments

Important Topics:

1. Image formation by spherical mirrors
2. Image formation by spherical lenses
3. Total internal reflection
4. Power and combination of lenses
5. Refraction through a Prism
6. Natural phenomena due to light
7. Eye
8. Telescope
9. Microscope

Chapter 10 – Wave optics

Important Topics:

1. Reflection and refraction of plane waves using Huygen principle
2. Incoherent and coherent waves addition
3. Interference and Young's double slit experiment
4. Diffraction of light
5. Resolving power of optical Instruments
6. Polarisation by scattering

Chapter 11 – Dual Nature of Radiation and Matter

Important Topics:

1. Photoelectric effect
2. Einstein photoelectric equation
3. de Broglie hypothesis
4. Davisson and Germer experiment

Chapter 12 – Atoms

Important Topics:

1. Electron Orbits
2. Atomic spectra
3. Bohr Model of Hydrogen atom
4. Line spectra of Hydrogen atom
5. de-Broglie explanation of Bohr's postulate

Chapter 13 – Nuclei

Important Topics:

1. Nuclear binding energy
2. Radioactivity
3. Radioactive decays

Chapter 14 – Semiconductor Electronics: Materials, Devices and Simple Circuits

Important Topics:

1. Intrinsic semiconductors
2. Extrinsic semiconductors
3. p-n Junction diode
4. p-n Junction in forward bias and reverse bias
5. Junction diode as rectifier
6. Zener diode as voltage regulator
7. n-p-n and p-n-p transistor
8. Transistor as an amplifier
9. Logic gates

Chapter 15 – Communication Systems

Important Topics:

1. Elements of communication system
2. Basic terminologies of electronic communication system
3. Propagation of em waves
4. Amplitude modulation