ChapterNotes

chapternotes.in · free NEET & JEE prep

CHAPTER NOTES

JEE Main 2027 Physics Hot Topics - Chapter-Wise Weightage

- ✓ Chapter-wise notes & important questions
- ✓ Free gamified practice app — streaks, levels, revision
- ✓ Free mock & prediction papers with answer keys

Source: https://chapternotes.in/jee-2027/jee-physics/jee-2027-physics-hot-topics/

Scan for free practice, mocks & more notes

JEE Main 2027 Physics Hot Topics - Chapter-Wise Weightage (Free PDF)

JEE Main 2027 Physics - Hot Topics Analysis based on 2021–2025 paper trends. Paper 1 (B.E./B.Tech) Physics section: **30 questions, 100 marks** (20 MCQs + 5 compulsory NVQs with +4/–1 marking). Mechanics, Electromagnetism, and Modern Physics account for **~75% of the Physics section**. Master these 20 chapters first.

JEE Main 2027 Session 1: expected January 2027. Session 2: expected April 2027 (dates to be announced by NTA). On-screen calculator available for all candidates.

Subject Distribution (2025 Paper Analysis)

- Mechanics: 35.0%
- Electromagnetism: 26.9%
- Modern Physics: 17.1%
- Optics: 8.8%
- Heat & Thermodynamics: 6.9%

Hot Topics Ranked by Weightage (2021–2025)

Current Electricity - 6.57% weightage (Class 12)

Key concepts: Ohm’s law, Kirchhoff’s laws, Wheatstone bridge, meter bridge, drift velocity, RC circuits

Question pattern: 2-3 questions, often numerical. Complex circuit analysis, equivalent resistance.

Ray Optics and Optical Instruments - 5.04% weightage (Class 12)

Key concepts: Refraction, lens/mirror formula, prism, TIR, fiber optics, microscope, telescope

Question pattern: 2 questions. Lens-mirror combinations, magnification numericals.

Semiconductor Electronics - 4.75% weightage (Class 12)

Key concepts: p-n junction, diode characteristics, rectifier, zener, transistor, logic gates

Question pattern: 2 questions. Output waveforms, logic gate combinations.

Gravitation - 4.49% weightage (Class 11)

Key concepts: Kepler’s laws, GPE, escape/orbital velocity, satellites, variation of g

Question pattern: 2 questions. Orbital mechanics, geostationary satellite.

Electrostatic Potential and Capacitance - 4.49% weightage (Class 12)

Key concepts: Potential, equipotential surfaces, capacitors, dielectrics, energy stored

Question pattern: 2 questions. Capacitor networks, charge redistribution.

Rotational Motion - 4.31% weightage (Class 11)

Key concepts: Torque, angular momentum, moment of inertia, rolling motion, centre of mass

Question pattern: 2 questions. MI calculations, rolling on inclines.

Units and Measurements - 4.24% weightage (Class 11)

Key concepts: Dimensional analysis, error analysis, significant figures, vernier/screw gauge

Question pattern: 1-2 questions. Dimensional formulae, error propagation.

Dual Nature of Radiation and Matter - 4.05% weightage (Class 12)

Key concepts: Photoelectric effect, de Broglie hypothesis, Einstein's equation, Davisson-Germer

Question pattern: 1-2 questions. Threshold, stopping potential, wavelength.

Alternating Current - 3.73% weightage (Class 12)

Key concepts: LCR circuits, resonance, Q-factor, power, transformer, phasor diagrams

Question pattern: 1-2 questions. Impedance, resonance frequency, power factor.

Oscillations - 3.25% weightage (Class 11)

Key concepts: SHM, pendulum, spring-mass, energy in SHM, damped/forced oscillations

Question pattern: 1-2 questions. Time period derivations, energy conservation.

Moving Charges and Magnetism - 3.2% weightage (Class 12)

Key concepts: Biot-Savart, Ampere's law, solenoid, cyclotron, force on current-carrying wire

Question pattern: 1-2 questions. Field from loops/solenoids, magnetic force.

Thermodynamics - 3.1% weightage (Class 11)

Key concepts: Laws of thermodynamics, PV diagrams, Carnot cycle, efficiency, entropy

Question pattern: 1-2 questions. PV work, efficiency calculations.

Electromagnetic Induction - 3.0% weightage (Class 12)

Key concepts: Faraday's, Lenz's law, self/mutual induction, motional EMF, eddy currents

Question pattern: 1-2 questions. EMF in rods, inductor transients.

Work, Energy and Power - 2.9% weightage (Class 11)

Key concepts: Work-energy theorem, conservative forces, collisions, power, spring energy

Question pattern: 1-2 questions. 1D/2D collisions, circular motion.

Kinematics (Motion in Straight Line + Plane) - 2.8% weightage (Class 11)

Key concepts: Equations of motion, projectile motion, relative velocity, graphs

Question pattern: 1-2 questions. Projectile range, river-boat problems.

Wave Optics - 2.7% weightage (Class 12)

Key concepts: Huygens, interference (YDSE), diffraction, polarisation, Brewster's angle

Question pattern: 1-2 questions. Fringe width, intensity, polarisation.

Atoms and Nuclei - 2.7% weightage (Class 12)

Key concepts: Bohr model, hydrogen spectrum, binding energy, radioactivity, nuclear reactions

Question pattern: 1-2 questions. Energy levels, half-life, Q-value.

Laws of Motion - 2.5% weightage (Class 11)

Key concepts: Newton's laws, friction, circular motion, constraint motion

Question pattern: 1-2 questions. Inclines with friction, pulley systems.

Waves - 2.5% weightage (Class 11)

Key concepts: Transverse/longitudinal waves, superposition, beats, Doppler effect, stationary waves

Question pattern: 1-2 questions. Doppler shift, harmonic frequencies.

Electromagnetic Waves - 2.0% weightage (Class 12)

Key concepts: EM spectrum, displacement current, properties of EM waves

Question pattern: 1 question. Wavelength/frequency ranges, properties.

How to Use This Page

Every topic has a unique anchor link. Our JEE 2027 prediction papers deep-link directly to these sections.

Related Resources

- JEE Main 2027 Preparation Hub
- JEE 2027 Chemistry Hot Topics
- JEE 2027 Maths Hot Topics

cn

Got this PDF from a friend?

Everything here is free at **chapternotes.in** — 134 chapters of notes, a gamified practice app, and full NEET mock & prediction papers.

Scan for free practice, mocks & more notes

📢 **Join our Telegram** · daily NEET PYQ with solution + every new PDF drop · **t.me/chapternotes_in**