NEET | IIT - JEE
FOUNDATION

1. Units, Dimensions and Measurement

Concept	Formula / Point
Percentage error	$\frac{\Delta x}{x} \times 100$
Error in product/division	Add relative errors
Error in power	If $z=x^n$, then $\frac{\Delta z}{z}=n\frac{\Delta x}{x}$
Dimensional check	Both sides of an equation must have the same dimensions

Units, Dimensions and Measurement is a small but useful chapter for NEET Physics. Questions from this chapter are often based on dimensional analysis, percentage error, and checking whether a formula is dimensionally correct. Students should not skip this chapter because it can help them solve quick and direct questions.

2. Kinematics

Concept	Formula
First equation of motion	$v=u+at$
Second equation of motion	$s=ut+\frac{1}{2}at^2$
Third equation of motion	$v^2=u^2+2as$
Projectile range	$R=\frac{u^2\sin 2\theta}{g}$
Maximum height	$H=\frac{u^2\sin^2\theta}{2g}$
Time of flight	$T=\frac{2u\sin\theta}{g}$

The equations of motion are valid when acceleration is uniform. Projectile motion formulas are usually used when air resistance is ignored and the projectile lands at the same vertical level from which it was projected. Kinematics becomes scoring when students practise standard question models instead of only memorising formulas.

3. Laws of Motion and Friction

Concept	Formula
Newton’s second law	$F_{\text{net}}=ma$
Limiting friction	$f_{\text{max}}=\mu_sN$
Static friction	$f_s\leq \mu_sN$
Kinetic friction	$f_k=\mu_kN$
Banking of road without friction	$\tan\theta=\frac{v^2}{rg}$

In Laws of Motion, most mistakes happen because students draw the wrong free body diagram. Before applying any formula, students should clearly mark all forces acting on the body. In friction, μ_s is used for static friction and μ_k is used for kinetic friction. The banking formula given above is for an ideal banked road without friction.

4. Work, Energy and Power

Concept	Formula
Work done	$W=Fs\cos\theta$
Kinetic energy	$K=\frac{1}{2}mv^2$
Potential energy near Earth’s surface	$U=mgh$
Work energy theorem	$W_{\text{net}}=\Delta K$
Average power	$P=\frac{W}{t}$
Instantaneous power	$P=\vec{F}\cdot\vec{v}$
Spring potential energy	$U=\frac{1}{2}kx^2$

Work, Energy and Power is a high return chapter because many questions can be solved faster using energy methods. The formula ($U=mgh$) is used near Earth’s surface where (g) is almost constant. For power, ($P=Fv$) can be used only when force and velocity are in the same direction. In general, instantaneous power is written as ($P=\vec{F}\cdot\vec{v}$).

5. Rotational Motion

Concept	Formula
Torque	($\tau=rF\sin\theta$)
Angular momentum	($L=I\omega$)
Rotational kinetic energy	($K=\frac{1}{2}I\omega^2$)
Moment of inertia of ring	($I=MR^2$)
Moment of inertia of disc	($I=\frac{1}{2}MR^2$)
Pure rolling condition	($v_{\text{cm}}=R\omega$)

Rotational Motion can be time consuming if students try to solve every question from scratch. It is better to revise the common formulas and standard bodies first. The moment of inertia formulas for ring and disc given here are about their central axis. The condition ($v_{\text{cm}}=R\omega$) is valid for pure rolling without slipping.

6. Gravitation

Concept	Formula
Universal law of gravitation	$F=\frac{GMm}{r^2}$
Gravitational field / acceleration due to gravity	$g=\frac{GM}{r^2}$
Gravitational potential energy	$U=-\frac{GMm}{r}$
Escape velocity, general form	$v_e=\sqrt{\frac{2GM}{r}}$
Escape velocity from planet surface	$v_e=\sqrt{2gR}$
Orbital velocity	$v_o=\sqrt{\frac{GM}{r}}$

Gravitation questions become easier when students understand what r represents. In most formulas, r is the distance from the centre of the planet or celestial body. The formula $v_e=\sqrt{2gR}$ is used for escape velocity from the surface of a planet. Students should also remember that gravitational potential energy is taken as zero at infinity.

7. Simple Harmonic Motion and Waves

Concept	Formula
SHM acceleration	$a=-\omega^2x$
Time period of spring mass system	$T=2\pi\sqrt{\frac{m}{k}}$
Time period of simple pendulum	$T=2\pi\sqrt{\frac{l}{g}}$
Wave speed	$v=f\lambda$
Velocity of wave on stretched string	$v=\sqrt{\frac{T}{\mu}}$

Simple Harmonic Motion and Waves require clear formula practice. The simple pendulum formula is valid for small angular oscillations. In the string wave velocity formula, T represents tension in the string and μ represents mass per unit length. Students should practise direct substitution questions to improve speed and accuracy.

8. Thermodynamics and Kinetic Theory

Concept	Formula
First law of thermodynamics	$Q=\Delta U+W$
Work in isobaric process	$W=P\Delta V$
Efficiency of heat engine	$\eta=\frac{W}{Q_H}$
Ideal gas equation	$PV=nRT$
RMS speed	$v_{\text{rms}}=\sqrt{\frac{3RT}{M}}$

Thermodynamics questions often become confusing because of sign convention. In the first law formula $Q=\Delta U+W$, W represents work done by the system. In the RMS speed formula, M should be taken as molar mass in kg/mol. Students should revise formulas along with units to avoid calculation mistakes.

9. Electrostatics

Concept	Formula
Coulomb's law	$F=\frac{kq_1q_2}{r^2}$
Electric field	$E=\frac{F}{q}$
Electric field due to point charge	$E=\frac{kq}{r^2}$
Electric potential due to point charge	$V=\frac{kq}{r}$
Capacitance	$C=\frac{Q}{V}$
Parallel plate capacitor, air/vacuum	$C=\frac{\varepsilon_0A}{d}$
Parallel plate capacitor with dielectric	$C=\frac{K\varepsilon_0A}{d}$
Energy stored in capacitor	$U=\frac{1}{2}CV^2$

Electrostatics is one of the most important chapters for NEET Physics. Students should revise both conceptual and numerical questions from electric field, potential, and capacitance. The formula

$C=\frac{\varepsilon_0A}{d}$ is used when air or vacuum is present between the plates. If a dielectric medium is introduced, the capacitance becomes $C=\frac{K\varepsilon_0A}{d}$.

10. Current Electricity

Concept	Formula
Ohm's law	$V=IR$
Resistance	$R=\rho\frac{l}{A}$
Series resistance	$R=R_1+R_2+\cdots$
Parallel resistance	$\frac{1}{R}=\frac{1}{R_1}+\frac{1}{R_2}+\cdots$
Electric power	$P=VI=I^2R=\frac{V^2}{R}$
Balanced Wheatstone bridge	$\frac{P}{Q}=\frac{R}{S}$

Current Electricity is a scoring chapter because many questions follow repeated models. Students should be comfortable with resistance combinations, power formulas, and circuit-based calculations. The Wheatstone bridge relation $\frac{P}{Q}=\frac{R}{S}$ is valid only when the bridge is balanced.

11. Magnetism, EMI and AC

Concept	Formula
Force on moving charge	($F=qvB\sin\theta$)
Force on current-carrying wire	($F=BIL\sin\theta$)
Magnetic field due to long straight wire	($B=\frac{\mu_0I}{2\pi r}$)
Faraday’s law for single turn	($e=-\frac{d\phi}{dt}$)
Faraday’s law for (N) turns	($e=-N\frac{d\phi}{dt}$)
Inductive reactance	($X_L=\omega L$)
Capacitive reactance	($X_C=\frac{1}{\omega C}$)
Impedance in series LCR circuit	($Z=\sqrt{R^2+(X_L-X_C)^2}$)

Magnetism, EMI and AC require formula clarity and unit discipline. In Faraday’s law, (N) should be included when the coil has multiple turns. The impedance formula given here is for a series LCR circuit. Students should practise questions involving direction of force, changing magnetic flux, reactance, and resonance-based concepts.

12. Ray Optics and Wave Optics

Concept	Formula
Mirror formula	($\frac{1}{f}=\frac{1}{v}+\frac{1}{u}$)
Lens formula	($\frac{1}{f}=\frac{1}{v}-\frac{1}{u}$)
Magnification	($m=\frac{h_i}{h_o}$)
Magnification for mirror	($m=-\frac{v}{u}$)
Magnification for lens	($m=\frac{v}{u}$)
Power of lens	($P=\frac{1}{f}$)
YDSE fringe width	($\beta=\frac{\lambda D}{d}$)

Optics becomes scoring when students revise sign conventions and practise diagrams. In the power of lens formula, focal length must be taken in metre and the unit of power is dioptre. Ray Optics needs careful use of sign convention, while Wave Optics requires clarity in formulas like fringe width and wavelength-based calculations.

13. Modern Physics

Concept	Formula
Photon energy	($E=h\nu=\frac{hc}{\lambda}$)
Photoelectric equation	($K_{\text{max}}=h\nu-\phi$)
Stopping potential relation	($K_{\text{max}}=eV_0$)
de Broglie wavelength	($\lambda=\frac{h}{p}$)
Radioactive decay	($N=N_0e^{-\lambda t}$)
Half-life	($T_{1/2}=\frac{0.693}{\lambda}$)
Mass-energy relation	($E=mc^2$)

Modern Physics is usually one of the best revision chapters for NEET because many questions are formula-based and concept-direct. Students should revise photoelectric effect, de Broglie wavelength, atoms, nuclei, and radioactive decay carefully. With clear concepts and formula practice, this chapter can help students solve questions quickly and improve their Physics score.

Conclusion

These Physics formulas are useful for quick NEET 2026 revision, but students should not memorise them blindly. Every formula should be revised with its condition, unit, and application pattern. In NEET Physics, marks are often lost not because students forget the formula, but because they apply the right formula in the wrong situation.