

NEET Exam All in one

Information bulletin

NEET Weightage

PHYSICS			
Chapters	Topics	No of questions	Yes/No
Units & Errors	Significant figures, Errors	1	
Kinematics	Motion graphs, Relative motion	1–2	
Laws of Motion	Friction, Circular motion	2	
Work Energy Power	Work-energy theorem, Collision	2	
Rotational Motion	Torque, Rolling motion	2	
Gravitation	Satellite motion, Escape velocity	1	
Thermodynamics	First law, PV graphs	1–2	
KTG	RMS speed, Gas laws	1	
SHM	Time period, Energy	1–2	
Waves	Doppler effect	1	
Electrostatics	Electric field, Capacitor	2	
Current Electricity	Kirchhoff law, Wheatstone bridge	2–3	
Magnetism & EMI	Force on charge, Lenz law	2	
Ray & Wave Optics	Mirror/Lens formula, YDSE	2	
Modern Physics	Photoelectric effect, Radioactivity	4–6	
Semiconductor	Diode, Logic gates	1	
CHEMISTRY			
Chapter	Key Topics	Avg. Questions	
Mole Concept	Limiting reagent	2	
Thermodynamics	ΔH , Gibbs energy	2	
Chemical Kinetics	Order, Half-life	2	
Electrochemistry	Nernst equation	2	
Solutions	Colligative properties	2	
Ionic Equilibrium	pH, Buffer	1–2	
GOC & Isomerism	Resonance, Acidity	2–3	
Hydrocarbons	Reaction mechanism	2–3	
Alcohol, Phenol, Ether	Named reactions	2	
Aldehyde & Ketone	Aldol, Cannizzaro	2–3	
Biomolecules	Proteins, Carbohydrates	1–2	
Chemical Bonding	VSEPR, Hybridisation	2–3	
Coordination Compounds	CFSE, IUPAC naming	2–3	
p-Block	Trends, Compounds	3–4	
d & f Block	Oxidation states	2	
BIOLOGY			
Molecular Basis of Inheritance	Replication, Transcription	3–4	

Principles of Inheritance	Mendelian crosses, Pedigree	2–3	
Evolution	Hardy-Weinberg principle	1–2	
Human Reproduction	Gametogenesis	2–3	
Reproductive Health	Contraceptive methods	1–2	
Biotechnology	PCR, Restriction enzymes	3–4	
Ecology	Ecosystem, Biodiversity	4–5	
Human Health & Disease	Immunity	2–3	
Plant Physiology	Photosynthesis	3–4	
Human Physiology	Circulation, Respiration	5–6	
Cell Biology	Cell organelles	2–3	
Diversity in Living World	Animal/Plant Kingdom	3–4	

Syllabus

PHYSICS

UNIT 1: PHYSICS AND MEASUREMENT

Units of measurement, system of units, SI units, fundamental and derived units, least count, significant figures, errors in measurement, dimensions of physical quantities, dimensional analysis and applications.

UNIT 2: KINEMATICS

Frame of reference; motion in straight line; position–time graph; speed and velocity; uniform/non-uniform motion; average and instantaneous velocity; uniformly accelerated motion; velocity–time and position–time graphs; equations of motion; scalars and vectors; vector operations; unit vector; resolution; relative velocity; motion in plane; projectile motion; uniform circular motion.

UNIT 3: LAWS OF MOTION

Force and inertia; Newton's laws; momentum; impulse; conservation of linear momentum; equilibrium of forces; friction (static, kinetic, rolling); centripetal force; vehicle motion on level and banked roads.

UNIT 4: WORK, ENERGY AND POWER

Work (constant/variable force); kinetic and potential energy; work–energy theorem; power; spring potential energy; conservation of mechanical energy; conservative/non-conservative forces; vertical circle motion; elastic and inelastic collisions (1D & 2D).

UNIT 5: ROTATIONAL MOTION

Centre of mass; torque; angular momentum; conservation of angular momentum; moment of inertia; radius of gyration; parallel and perpendicular axis theorems; rigid body equilibrium; rotational motion equations; comparison with linear motion.

UNIT 6: GRAVITATION

Universal gravitation; acceleration due to gravity (variation); Kepler's laws; gravitational potential and potential energy; escape velocity; satellite motion; orbital velocity; time period; satellite energy.

UNIT 7: PROPERTIES OF SOLIDS AND LIQUIDS

Elasticity; stress–strain; Hooke's law; elastic moduli; fluid pressure; Pascal's law; viscosity; Stokes' law; terminal velocity;

streamline/turbulent flow; Bernoulli's principle; surface tension; capillarity; heat and temperature; thermal expansion; specific heat; calorimetry; change of state; latent heat; heat transfer (conduction, convection, radiation).

UNIT 8: THERMODYNAMICS

Thermal equilibrium; zeroth law; heat, work, internal energy; first law; isothermal/adiabatic processes; second law; reversible and irreversible processes.

UNIT 9: KINETIC THEORY OF GASES

Equation of state; gas compression work; assumptions of kinetic theory; pressure concept; RMS speed; degrees of freedom; law of equipartition; specific heat capacity; mean free path; Avogadro number.

UNIT 10: OSCILLATIONS AND WAVES

Periodic motion; SHM; phase; spring oscillations; energy in SHM; simple pendulum; wave motion; longitudinal/transverse waves; wave speed; superposition; standing waves; harmonics; beats.

UNIT 11: ELECTROSTATICS

Electric charges; Coulomb's law; superposition; electric field and dipole; Gauss's law; electric potential; equipotential surfaces; potential energy; capacitors; parallel plate capacitor; combination of capacitors; energy stored.

UNIT 12: CURRENT ELECTRICITY

Electric current; drift velocity; Ohm's law; resistance; V-I characteristics; electrical energy and power; resistivity; series/parallel resistors; temperature dependence; internal resistance; emf; Kirchhoff's laws; Wheatstone and metre bridge.

UNIT 13: MAGNETIC EFFECTS OF CURRENT AND MAGNETISM

Biot-Savart law; Ampere's law; force on moving charge and conductor; torque on current loop;

galvanometer; magnetic dipole; bar magnet; magnetic properties (para, dia, ferro).

UNIT 14: ELECTROMAGNETIC INDUCTION AND AC

Faraday's law; Lenz's law; eddy currents; self/mutual inductance; alternating current; RMS value; reactance; impedance; LCR circuit; resonance; AC generator; transformer.

UNIT 15: ELECTROMAGNETIC WAVES

Displacement current; electromagnetic waves; characteristics; electromagnetic spectrum; applications.

UNIT 16: OPTICS

Reflection; spherical mirrors; refraction; lenses; total internal reflection; magnification; prism; microscope; telescope; interference; diffraction; polarization; Brewster's law.

UNIT 17: DUAL NATURE OF MATTER AND RADIATION

Photoelectric effect; Einstein equation; particle nature of light; matter waves; de Broglie relation.

UNIT 18: ATOMS AND NUCLEI

Rutherford model; Bohr model; hydrogen spectrum; nuclear composition; mass-energy relation; binding energy; fission and fusion.

UNIT 19: ELECTRONIC DEVICES

Semiconductors; p-n junction diode; I-V characteristics; rectifier; LED; photodiode; solar cell; Zener diode; logic gates (OR, AND, NOT, NAND, NOR).

UNIT 20: EXPERIMENTAL SKILLS

Vernier calipers; screw gauge; simple pendulum; metre scale; Young's modulus; surface tension; viscosity; speed of sound; specific heat; resistivity; Ohm's law; galvanometer; focal length (mirror/lens); prism deviation; refractive index; diode characteristics; identification of electronic components.

CHEMISTRY

PHYSICAL CHEMISTRY**UNIT 1: SOME BASIC CONCEPTS IN CHEMISTRY**

Matter and its nature; Dalton's atomic theory; atom, molecule, element, compound; laws of chemical combination; atomic and molecular masses; mole concept; molar mass; percentage composition; empirical and molecular formula; chemical equations; stoichiometry.

UNIT 2: ATOMIC STRUCTURE

Electromagnetic radiation; photoelectric effect; hydrogen spectrum; Bohr model and limitations; dual nature of matter; de Broglie relation; Heisenberg uncertainty principle; quantum mechanical model; atomic orbitals; quantum numbers; shapes of s, p, d orbitals; electron spin; Aufbau principle; Pauli exclusion principle; Hund's rule; electronic configuration; stability of half-filled and fully filled orbitals.

UNIT 3: CHEMICAL BONDING AND MOLECULAR STRUCTURE

Ionic and covalent bonding; lattice enthalpy; electronegativity; Fajan's rule; dipole moment; VSEPR theory; valence bond theory; hybridization; resonance; molecular orbital theory; LCAO; bonding and antibonding orbitals; bond order; metallic bonding; hydrogen bonding.

UNIT 4: CHEMICAL THERMODYNAMICS

System and surroundings; state functions; first law; work, heat, internal energy, enthalpy; Hess's law; bond enthalpy; second law; entropy; Gibbs free energy; spontaneity; equilibrium constant.

UNIT 5: SOLUTIONS

Concentration terms (molarity, molality, mole fraction, percentage); Raoult's law; ideal and non-ideal solutions; colligative properties; molar mass

determination; abnormal molar mass; van't Hoff factor.

UNIT 6: EQUILIBRIUM

Physical and chemical equilibrium; equilibrium constant (K_p , K_c); Le Chatelier's principle; ionic equilibrium; acids and bases (Arrhenius, Bronsted-Lowry, Lewis); pH; hydrolysis; solubility product; buffer solutions.

UNIT 7: REDOX REACTIONS AND ELECTROCHEMISTRY

Oxidation-reduction; oxidation number; balancing redox reactions; electrolytic and galvanic cells; electrode potential; Nernst equation; conductance; Kohlrausch's law; relation between cell potential and Gibbs energy; dry cell; lead accumulator; fuel cells.

UNIT 8: CHEMICAL KINETICS

Rate of reaction; factors affecting rate; order and molecularity; rate law; rate constant; zero and first-order reactions; half-life; Arrhenius equation; activation energy; collision theory.

INORGANIC CHEMISTRY**UNIT 9: CLASSIFICATION OF ELEMENTS AND PERIODICITY**

Modern periodic law; periodic table; s, p, d, f block elements; periodic trends (atomic/ionic radii, ionization enthalpy, electron gain enthalpy, valency, oxidation states, reactivity).

UNIT 10: P-BLOCK ELEMENTS

Group 13-18 elements; electronic configuration; physical and chemical properties; trends; anomalous behaviour of first element.

UNIT 11: d- AND f-BLOCK ELEMENTS

Transition elements; properties; oxidation states; colour; magnetic behaviour; catalytic properties; complex formation; $K_2Cr_2O_7$ and $KMnO_4$; lanthanoids and actinoids; electronic configuration; lanthanoid contraction.

UNIT 12: COORDINATION COMPOUNDS

Werner's theory; ligands; coordination number; nomenclature; isomerism; valence bond theory; crystal field theory; colour and magnetic properties; applications in analysis, metallurgy and biology.

ORGANIC CHEMISTRY

UNIT 13: PURIFICATION AND CHARACTERISATION OF ORGANIC COMPOUNDS

Purification methods (crystallization, sublimation, distillation, extraction, chromatography); qualitative and quantitative analysis; empirical and molecular formula calculations.

UNIT 14: BASIC PRINCIPLES OF ORGANIC CHEMISTRY

Tetravalency; hybridization; functional groups; homologous series; isomerism; IUPAC nomenclature; bond fission; carbocations, carbanions, free radicals; electrophiles and nucleophiles; inductive, resonance and hyperconjugation effects; substitution, addition, elimination and rearrangement reactions.

UNIT 15: HYDROCARBONS

Alkanes (conformations, halogenation); alkenes (geometrical isomerism, electrophilic addition,

ozonolysis, polymerization); alkynes (acidic nature, addition reactions); aromatic hydrocarbons (benzene, electrophilic substitution, Friedel–Crafts reactions).

UNIT 16: ORGANIC COMPOUNDS CONTAINING HALOGENS

Preparation, properties, reactions; substitution mechanisms; environmental effects of halo compounds.

UNIT 17: ORGANIC COMPOUNDS CONTAINING OXYGEN

Alcohols, phenols, ethers (preparation, reactions); aldehydes and ketones (nucleophilic addition, oxidation, reduction, aldol, Cannizzaro, haloform); carboxylic acids (acidic strength).

UNIT 18: ORGANIC COMPOUNDS CONTAINING NITROGEN

Amines (classification, basicity, identification); diazonium salts; preparation, properties and uses.

UNIT 19: BIOMOLECULES

Carbohydrates; proteins (structure levels, enzymes); vitamins; nucleic acids (DNA, RNA); hormones (basic idea).

UNIT 20: PRINCIPLES RELATED TO PRACTICAL CHEMISTRY

Detection of elements and functional groups; preparation of inorganic and organic compounds; titrimetric principles; qualitative salt analysis; enthalpy experiments; colloids; kinetic study of iodide–hydrogen peroxide reaction.

BIOLOGY

UNIT 1: DIVERSITY IN LIVING WORLD

What is living; biodiversity; need for classification; taxonomy and systematics; species concept; taxonomical hierarchy; binomial nomenclature; five kingdom classification; Monera, Protista, Fungi; lichens; viruses and viroids; plant groups

(Algae, Bryophytes, Pteridophytes, Gymnosperms); animal classification (non-chordates up to phyla, chordates up to classes).

UNIT 2: STRUCTURAL ORGANISATION IN ANIMALS AND PLANTS

Plant morphology and modifications; tissues; anatomy of flowering plants (root, stem, leaf, inflorescence, flower, fruit, seed); plant families (Malvaceae, Cruciferae, Leguminosae, Compositae, Gramineae); animal tissues; frog morphology and organ systems (digestive, circulatory, respiratory, nervous, reproductive).

UNIT 3: CELL STRUCTURE AND FUNCTION

Cell theory; prokaryotic and eukaryotic cells; plant and animal cells; cell envelope; organelles; endomembrane system; mitochondria; ribosomes; plastids; cytoskeleton; cilia; flagella; centrioles; nucleus; biomolecules (proteins, carbohydrates, lipids, nucleic acids); enzymes; cell cycle; mitosis; meiosis.

UNIT 4: PLANT PHYSIOLOGY

Photosynthesis (pigments, light and dark reactions, C₃ and C₄ pathways, photorespiration); respiration (glycolysis, TCA cycle, ETS, ATP yield, RQ); plant growth and development; growth regulators (auxin, gibberellin, cytokinin, ethylene, ABA).

UNIT 5: HUMAN PHYSIOLOGY

Breathing and respiration; body fluids and circulation; excretion and osmoregulation; locomotion and movement; neural control and coordination; endocrine system and hormonal disorders.

UNIT 6: REPRODUCTION

Sexual reproduction in flowering plants; human reproduction; gametogenesis; menstrual cycle; fertilisation and embryonic development; reproductive health; contraception; MTP; infertility and ART (IVF, ZIFT, GIFT).

UNIT 7: GENETICS AND EVOLUTION

Mendelian inheritance; chromosomal basis; sex determination; linkage and crossing over; genetic disorders; molecular basis of inheritance (DNA, replication, transcription, translation, Lac operon); evolution; Darwinism; Hardy-Weinberg principle; human evolution.

UNIT 8: BIOLOGY AND HUMAN WELFARE

Human health and diseases; pathogens; immunity; vaccines; cancer; HIV/AIDS; drug and alcohol abuse; microbes in human welfare (industry, sewage treatment, biofertilizers, biocontrol).

UNIT 9: BIOTECHNOLOGY AND ITS APPLICATIONS

Recombinant DNA technology; applications in medicine and agriculture; insulin; gene therapy; GM crops; transgenic animals; biosafety; biopiracy; patents.

UNIT 10: ECOLOGY AND ENVIRONMENT

Organisms and environment; population interactions; ecosystem structure and function; energy flow; ecological pyramids; biodiversity and conservation; hotspots; endangered species; national parks; biosphere reserves; sacred groves.

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