NEET UG 2026
LAST 7 DAYS SURVIVAL GUIDE

Subject-wise Cheat Sheets + Exam Day Master Plan

■ DO NOT start any new topic. Revision ONLY. Sleep 7 hrs minimum.

720 Total Marks	180 Questions	3h 20m Exam Duration	7 Days Remaining

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7-Day Countdown Plan

Day 7 (7 days before exam):

- Morning (2 hrs): Plant Physiology - Photosynthesis, Respiration, Transpiration quick review with diagrams
- Afternoon (2 hrs): Mechanics - Kinematics and Dynamics problem-solving, focus on circular motion formulas
- Evening (2 hrs): General Organic Chemistry - Reaction mechanisms, SN1/SN2, Elimination reactions
- Night (1 hr): Full-length mock test (3 hours) or solve 2024 NEET PYQ set 1

Day 6 (6 days before exam):

- Morning (2 hrs): Human Physiology - Digestion, Respiration, Circulation systems rapid revision
- Afternoon (2 hrs): Waves and Sound - Doppler effect, interference, standing waves practice problems
- Evening (2 hrs): Inorganic Chemistry - d-block elements, coordination compounds, important reactions
- Night (1 hr): Solve 2023 NEET PYQ paper + check weak areas

Day 5 (5 days before exam):

- Morning (2 hrs): Genetics and Heredity - Mendelian inheritance, linkage, gene mapping, pedigree analysis
- Afternoon (2 hrs): Electromagnetism formulas review - E=q*V, F=qvB, Faraday's law, transformer equation
- Evening (2 hrs): Named Reactions - Aldol, Grignard, Diels-Alder, Cannizzaro, Wurtz reactions with mechanisms
- Night (1 hr): Attempt 45-question mini mock covering all three subjects equally

Day 4 (4 days before exam):

- Morning (2 hrs): Evolution, Ecology and Biodiversity - Natural selection, ecosystem cycles, food chains, conservation
- Afternoon (2 hrs): Modern Physics and Optics - Photoelectric effect, Bohr model, lens formula, diffraction grating

• Evening (2 hrs): Organic Chemistry mechanisms deep dive - Nitration, Sulfonation, Friedel-Crafts, Esterification

• Night (1 hr): Analyze 2022 previous year paper, identify question patterns and mark distribution

Day 3 (3 days before exam):

• Morning (2 hrs): Full Biology rapid revision - Cell Biology, Photosynthesis, Respiration, Digestion in 90 minutes

• Afternoon (2 hrs): Physics formula sheet complete revision - Write all formulas, units, dimensional analysis check

• Evening (2 hrs): Full Chemistry rapid revision - Periodic table trends, bonding, redox reactions, equilibrium constants

• Night (1 hr): Rest only - light reading of important definitions, NO active problem-solving

Day 2 (2 days before exam):

• Morning (2 hrs): Revise ONLY your identified weak topics from mock tests - focus on Biology genetics and Chemistry coordination compounds

• Afternoon (2 hrs): Solve complete 2023 and 2024 NEET papers under timed conditions (3 hours each)

• Evening (1 hr): Prepare documents - Admit card, ID proof, calculator check, route to exam center planning

• Night: Sleep by 10 PM - NO studying, NO last-minute cramming

Day 1 (Exam Day):

• 5:30 AM: Wake up, drink water, eat light breakfast (banana, toast, milk)

• 6:00 AM: Glance at important formulas for 30 minutes only - stop at 6:30 AM

• 6:30 AM to 7:00 AM: Get ready, check documents once more

• 7:00 AM: Leave for exam center with 30 minutes buffer time

• 9:00 AM to 12:20 PM: Exam strategy - Scan all 180 questions first, attempt easy questions (Biology) first, then Physics, then Chemistry, attempt difficult questions only if time remains, maintain answer sheet focus to avoid bubbling errors

BIOLOGY CHEAT SHEET | 90 Questions | 360 Marks

BIOLOGY CHEAT SHEET

Top 25 Most-Asked Botany Facts

- Mitochondria are the powerhouse of the cell, contain their own DNA (mtDNA), and have double membrane [Cell Biology]
- Chloroplasts contain thylakoids arranged in grana for light reactions and stroma for dark reactions [Cell Biology]
- Stomata are pores surrounded by guard cells that regulate gas exchange and water loss [Plant Anatomy]
- Xylem transports water and minerals from roots upward, contains dead cells (vessels and tracheids) [Plant Physiology]
- Phloem transports organic nutrients (sugars) in both directions, contains living sieve tubes and companion cells [Plant Physiology]
- Photosynthesis equation: 6CO2 + 6H2O + light energy -> C6H12O6 + 6O2 [Plant Physiology]
- Light reactions occur in thylakoid membrane and produce ATP and NADPH [Plant Physiology]
- Dark reactions (Calvin cycle) occur in stroma and fix CO2 into glucose using ATP and NADPH [Plant Physiology]
- Respiration equation: C6H12O6 + 6O2 -> 6CO2 + 6H2O + energy (ATP) [Plant Physiology]
- Gibberellins promote seed germination and stem elongation [Plant Hormones]
- Auxins cause phototropism and promote cell elongation [Plant Hormones]
- Ethylene is a gaseous hormone that promotes fruit ripening and senescence [Plant Hormones]
- Cytokinins promote cell division and delay plant senescence [Plant Hormones]
- Abscisic acid (ABA) is a stress hormone that closes stomata during drought [Plant Hormones]
- Alternation of generations: sporophyte (diploid) and gametophyte (haploid) [Plant Reproduction]
- Angiosperms undergo double fertilization: one sperm fuses with egg (embryo), another fuses with polar nuclei (endosperm) [Plant Reproduction]
- Pollination is transfer of pollen grain, fertilization is fusion of gametes [Plant Reproduction]
- Seed = fertilized ovule containing embryo, endosperm, and seed coat [Plant Reproduction]
- Fruit = mature ovary that aids seed dispersal [Plant Reproduction]
- Mendel's law of segregation: alleles separate during gamete formation [Genetics]
- Mendel's law of independent assortment: different genes assort independently [Genetics]

- Chi-square test: (O-E)^2/E used to determine if observed ratio matches expected ratio [Genetics]
- Ecosystem has biotic (living) and abiotic (non-living) components [Ecology]
- Food chain: producer -> primary consumer -> secondary consumer -> tertiary consumer [Ecology]
- Ecological succession: pioneer species -> climax community [Ecology]

Top 25 Most-Asked Zoology Facts

- Human skeleton has 206 bones in adults (270 at birth, fuse over time) [Human Anatomy]
- Red blood cells (RBC) carry oxygen via hemoglobin, lack nucleus in mammals [Circulatory System]
- White blood cells (WBC) fight infections; neutrophils are most abundant [Immune System]
- Platelets (thrombocytes) are cell fragments that aid blood clotting [Circulatory System]
- Heart has 4 chambers: right atrium, right ventricle, left atrium, left ventricle [Circulatory System]
- Blood pressure: systolic/diastolic, normal is 120/80 mmHg [Circulatory System]
- Hemoglobin structure: 4 subunits (2 alpha, 2 beta), each contains heme with iron [Circulatory System]
- Lungs have alveoli (air sacs) where gas exchange occurs [Respiratory System]
- Tidal volume (normal breathing) is about 500 mL [Respiratory System]
- Gastric juice contains HCl and pepsin for protein digestion [Digestive System]
- Small intestine is site of maximum nutrient absorption [Digestive System]
- Liver produces bile for fat emulsification and detoxifies waste [Digestive System]
- Pancreas produces digestive enzymes and insulin/glucagon [Endocrine System]
- Kidney filters blood and produces urine (nephron is functional unit) [Excretory System]
- Glomerular filtration: passive process in Bowman's capsule [Excretory System]
- Brain divided into cerebrum, cerebellum, and brainstem [Nervous System]
- Cerebral cortex controls voluntary movements and higher functions [Nervous System]
- Neuron structure: dendrite, cell body, axon [Nervous System]
- Synapse is gap between neurons; neurotransmitters cross the gap [Nervous System]
- Action potential: depolarization -> repolarization -> hyperpolarization [Nervous System]
- Reproduction: testes produce sperm, ovaries produce eggs [Reproductive System]
- Meiosis produces haploid (n) gametes from diploid (2n) cells [Cell Division]
- Mitosis produces two identical diploid cells for growth and repair [Cell Division]
- DNA replication is semi-conservative: each new DNA has one old and one new strand [Molecular Biology]
- Genetic code: 64 codons code for 20 amino acids; 3 stop codons [Molecular Biology]

Top 25 Most-Asked Zoology Facts (Continued)

- Translation occurs on ribosomes; mRNA is read in 5' to 3' direction [Molecular Biology]
- Natural selection favors organisms with advantageous traits [Evolution]
- Hardy-Weinberg equilibrium: allele frequencies remain constant without mutation, selection, drift [Population Genetics]
- DNA fingerprinting uses restriction enzymes to cut DNA at specific sites [Biotechnology]
- PCR (polymerase chain reaction) amplifies specific DNA sequences exponentially [Biotechnology]
- Restriction enzymes cut DNA at palindromic sequences [Biotechnology]
- Recombinant DNA: combining DNA from different sources [Biotechnology]
- Plasmids are circular DNA in bacteria used as vectors [Biotechnology]
- Gene therapy replaces faulty genes with functional copies [Biotechnology]
- Karyotype shows all chromosomes of organism; humans have 23 pairs [Human Genetics]
- Sex-linked traits located on X chromosome show different inheritance patterns [Human Genetics]
- Color blindness and hemophilia are X-linked recessive traits [Human Genetics]
- ABO blood grouping: determined by glycoproteins on RBC surface [Human Genetics]
- RhD factor: Rh+ or Rh- determines compatibility for blood transfusion [Human Genetics]
- Antibiotics work by disrupting bacterial cell walls or protein synthesis [Microbiology]
- Bacteria reproduce by binary fission (asexual) [Microbiology]
- Viruses contain either DNA or RNA, not both [Microbiology]
- Vaccines provide active immunity by stimulating antibody production [Immunology]
- Antibodies (immunoglobulins) are Y-shaped proteins that bind antigens [Immunology]
- Lymphocytes include T cells (cell-mediated immunity) and B cells (humoral immunity) [Immunology]

Important Biology Numbers to Remember

- 206: Number of bones in adult human body
- 270: Number of bones at birth (decrease due to fusion)
- 32: Number of teeth in adult humans
- 206: Bones in human skeletal system
- 639: Number of skeletal muscles in human body
- 4.5-5.5 million: Red blood cells per microliter of blood
- 4,500-11,000: White blood cells per microliter of blood
- 150,000-400,000: Platelets per microliter of blood
- 120/80: Normal blood pressure (systolic/diastolic in mmHg)
- 72: Normal resting heart rate (beats per minute)
- 500: Tidal volume (normal breathing volume in mL)
- 6000: Total lung capacity in mL

- 1.5: Amount of oxygen dissolved in 100 mL blood
- 20.8: Percentage of O2 in air
- 23: Number of chromosome pairs in humans (46 total)
- 3.2: Length of human DNA helix in meters (if uncoiled)
- 64: Number of codons in genetic code
- 20: Number of amino acids in proteins
- 3: Minimum codons for start (AUG) and stop (UAA, UAG, UGA)
- 2: Strands in DNA double helix

Commonly Confused Terms (Biology)

- Mitochondria vs Chloroplast: Both have double membranes and own DNA; mitochondria in all eukaryotes, chloroplasts only in plants
- Xylem vs Phloem: Xylem transports water upward (dead cells), phloem transports nutrients both ways (living cells)
- Photosynthesis vs Respiration: Photosynthesis is anabolic (builds glucose from CO2), respiration is catabolic (breaks down glucose for energy)
- Mitosis vs Meiosis: Mitosis produces 2 identical diploid cells (growth), meiosis produces 4 different haploid cells (gametes)
- Pollination vs Fertilization: Pollination is pollen transfer (physical), fertilization is gamete fusion (genetic)
- Arteries vs Veins: Arteries carry oxygenated blood away from heart (thick walls, high pressure), veins carry deoxygenated blood to heart (thin walls, low pressure)
- Systole vs Diastole: Systole is contraction (high BP), diastole is relaxation (low BP)
- Dendrite vs Axon: Dendrite receives signals from other neurons, axon sends signals to other neurons
- DNA vs RNA: DNA is double-stranded deoxyribose sugar, RNA is single-stranded ribose sugar
- Genotype vs Phenotype: Genotype is genetic makeup (genes), phenotype is observable characteristics (genes + environment)

Biology High-Yield Topics (Attempt these first)

- Photosynthesis and Respiration: 4-5 questions expected
- Human Circulatory System (heart, blood, vessels): 4-5 questions expected
- Cell Division (mitosis, meiosis): 4-5 questions expected
- Genetics and Heredity (Mendelian, linkage): 4-5 questions expected
- DNA and Molecular Biology (replication, transcription, translation): 4-5 questions expected
- Plant Hormones and Growth: 3-4 questions expected

- Nutrition and Digestion: 3-4 questions expected
- Nervous System and Synaptic Transmission: 3-4 questions expected
- Immune System and Disease: 3-4 questions expected
- Ecology and Food Chains: 3-4 questions expected

ADDITIONAL QUICK-REFERENCE TABLES

Plant Hormones Summary

- Gibberellins: Seed germination, stem elongation, flowering
- Auxins: Phototropism, cell elongation, apical dominance
- Ethylene: Fruit ripening, senescence, abscission
- Cytokinins: Cell division, delays senescence, nutrient mobilization
- Abscisic acid (ABA): Stomatal closure, stress response, seed dormancy

Human Digestive Enzymes

- Salivary amylase: Starch to maltose (mouth)
- Pepsin: Proteins to polypeptides (stomach)
- Pancreatic amylase: Starch to maltose (small intestine)
- Trypsin: Proteins to amino acids (small intestine)
- Lipase: Fats to fatty acids and glycerol (small intestine)

Blood Groups and Compatibility

- A: Antigen A present, antibody B; can give to A and AB, receive from A and O
- B: Antigen B present, antibody A; can give to B and AB, receive from B and O
- AB: Both antigens present, no antibodies (universal recipient); can give only to AB
- O: No antigens, both antibodies (universal donor); can receive only from O

Respiratory Volumes

- Tidal volume (TV): 500 mL (normal

PHYSICS CHEAT SHEET | 45 Questions | 180 Marks

PHYSICS CHEAT SHEET - NEET UG 2026 (LAST 7 DAYS REVISION)

CHAPTER-WISE KEY FORMULAS

Mechanics (Laws of Motion, Work Energy, Gravitation)

- F = ma (Newton's second law)
- Work = F*d*cos(theta) = Change in kinetic energy
- Kinetic Energy = (1/2)*m*v^2
- Potential Energy (gravitational) = mgh
- Power = Work/time = F*v
- Momentum = m*v, Impulse = F*delta_t = Change in momentum
- Gravitational Force = G*M*m/r^2
- Escape velocity = sqrt(2*G*M/R)
- Orbital velocity = sqrt(G*M/r)
- Coefficient of restitution = relative velocity of separation / relative velocity of approach
- Torque = r*F*sin(theta) = I*alpha
- Angular momentum = I*omega = m*v*r (for circular motion)
- Moment of inertia = m*r^2 (point mass), (1/2)*m*r^2 (disk), (2/5)*m*r^2 (sphere)
- Rolling motion: v = omega*R, KE_total = (1/2)*m*v^2 + (1/2)*I*omega^2

Thermodynamics

- First law: delta_U = Q - W (Q = heat absorbed, W = work done by system)
- Work done by gas = P*delta_V (constant pressure)
- Ideal gas law: PV = nRT = N*k_B*T
- Specific heat: Q = m*c*delta_T
- Heat capacity at constant pressure vs volume: C_p - C_V = R (for 1 mole)
- Efficiency of heat engine = W/Q_in = 1 - Q_out/Q_in
- Carnot efficiency = 1 - T_cold/T_hot
- Entropy change: delta_S = Q_reversible/T

- For adiabatic process: PV^gamma = constant, T*V^(gamma-1) = constant
- Mean kinetic energy per molecule = (3/2)*k_B*T

Waves and Oscillations

- Simple harmonic motion: x = A*sin(omega*t + phi), a = -omega^2*x
- Velocity in SHM: v = omega*sqrt(A^2 - x^2)
- Energy in SHM: E = (1/2)*k*A^2 = (1/2)*m*omega^2*A^2
- Period of pendulum: T = 2*pi*sqrt(L/g)
- Period of spring: T = 2*pi*sqrt(m/k)
- Wave equation: v = f*lambda (velocity = frequency x wavelength)
- Intensity of wave: I = (1/2)*rho*v*omega^2*A^2 (proportional to A^2 and f^2)
- Doppler effect: f' = f*(v + v_observer)/(v - v_source)
- Interference: Constructive when path difference = n*lambda, Destructive when path difference = (n + 1/2)*lambda
- Beat frequency = |f1 - f2|
- Standing waves: L = n*lambda/2 (closed at one end), L = n*lambda/2 (open at both ends)

Electrostatics and Current Electricity

- Coulomb's law: F = k*q1*q2/r^2, where k = 1/(4*pi*epsilon_0) = 9x10^9 N*m^2/C^2
- Electric field: E = F/q = k*Q/r^2
- Electric potential: V = W/q = k*Q/r
- Potential difference: V_AB = V_A - V_B = W_AB/q
- Electric dipole moment: p = q*d
- Capacitance: C = Q/V = epsilon_0*A/d (parallel plate)
- Energy stored in capacitor: U = (1/2)*Q*V = (1/2)*C*V^2 = (1/2)*Q^2/C
- Current: I = Q/t, I = n*e*v_d*A (drift velocity relation)
- Resistance: R = rho*L/A (rho = resistivity)
- Ohm's law: V = I*R
- Power: P = V*I = I^2*R = V^2/R
- EMF and internal resistance: V = EMF - I*r
- Resistivity variation with temperature: rho = rho_0*(1 + alpha*delta_T)

Magnetism

- Magnetic force on charge: F = q*v*B*sin(theta)

- Magnetic force on current-carrying wire: F = I*L*B*sin(theta)
- Magnetic field due to long straight wire: B = (mu_0*I)/(2*pi*r)
- Magnetic field at center of circular loop: B = (mu_0*I)/(2*R)
- Magnetic field inside solenoid: B = mu_0*n*I (n = number of turns per unit length)
- Torque on current loop: tau = N*I*A*B*sin(theta) = M*B*sin(theta)
- Magnetic dipole moment: M = I*A
- Lorentz force: F = q*(E + v x B)
- Radius of circular motion in B field: r = m*v/(q*B)
- Cyclotron frequency: f = q*B/(2*pi*m)

Optics (Ray and Wave)

- Refractive index: n = c/v
- Snell's law: n1*sin(theta1) = n2*sin(theta2)
- Critical angle: sin(theta_c) = n2/n1 (for total internal reflection)
- Lens formula: 1/f = 1/u + 1/v
- Magnification: m = -v/u = h_i/h_o
- Power of lens: P = 1/f (in diopters when f in meters)
- Lens maker's formula: 1/f = (n - 1)*(1/R1 - 1/R2)
- Mirror formula: 1/f = 1/u + 1/v (same as lens)
- Young's double slit interference: Path difference = (lambda*D)/d, fringe width beta = (lambda*D)/d
- Single slit diffraction: First minimum at sin(theta) = lambda/b
- Rayleigh criterion: theta_min = 1.22*lambda/D

Modern Physics (Photoelectric, Atomic, Nuclear)

- Photon energy: E = h*f = h*c/lambda
- Photoelectric effect: h*f = phi + KE_max (phi = work function)
- Stopping potential: e*V_s = KE_max
- De Broglie wavelength: lambda = h/p = h/(m*v)
- Bohr's postulate: L = n*h/(2*pi) = n*(h_bar)
- Bohr radius: a_0 = (4*pi*epsilon_0*h^2)/(m_e*e^2) = 0.53 Angstrom
- Energy levels in hydrogen: E_n = -13.6/n^2 eV
- Wavelength for transition: 1/lambda = R_H*(1/n1^2 - 1/n2^2)
- X-ray wavelength: lambda_min = h*c/(e*V)
- Nuclear radius: R = R_0*A^(1/3), where R_0 = 1.2 fm
- Mass defect: delta_m = Z*m_p + (A-Z)*m_n - M_nucleus

- Binding energy: BE = delta_m*c^2
- Radioactive decay: N = N_0*e^(-lambda*t), t_half = ln(2)/lambda
- Activity: A = lambda*N

Semiconductor Electronics

- Intrinsic semiconductor: n_i = sqrt(N_c*N_v)*e^(-E_g/(2*k_B*T))
- Conductivity: sigma = n*e*mu_n + p*e*mu_p
- PN junction: V_T = (k_B*T*ln(N_A*N_D/n_i^2))/e at equilibrium
- Transistor current relations: I_E = I_B + I_C, beta = I_C/I_B
- Common emitter gain: Av = -g_m*R_L

IMPORTANT PHYSICAL CONSTANTS

- c = 3x10^8 m/s (Speed of light in vacuum)
- G = 6.67x10^-11 N*m^2/kg^2 (Gravitational constant)
- h = 6.63x10^-34 J*s (Planck's constant)
- h_bar = 1.055x10^-34 J*s (Reduced Planck constant)
- e = 1.6x10^-19 C (Elementary charge)
- m_e = 9.109x10^-31 kg (Electron mass)
- m_p = 1.673x10^-27 kg (Proton mass)
- k = 9x10^9 N*m^2/C^2 (Coulomb constant)
- epsilon_0 = 8.854x10^-12 F/m (Permittivity of free space)
- mu_0 = 4*pi x10^-7 T*m/A (Permeability of free space)
- k_B = 1.38x10^-23 J/K (Boltzmann constant)
- R = 8.314 J/(mol*K) (Universal gas constant)
- g = 9.8 m/s^2 (Acceleration due to gravity, use 10 m/s^2 for quick calculation)
- R_H = 1.097x10^7 m^-1 (Rydberg constant)
- sigma = 5.67x10^-8 W/(m^2*K^4) (Stefan-Boltzmann constant)

TRICKY CONCEPTS (FREQUENTLY WRONG IN NEET)

• Direction of friction: Friction ALWAYS opposes relative motion. On moving object with ground, it acts backward. In circular motion on banked road, it can act inward or outward depending on speed.

• Normal force is NOT always equal to weight. On inclined plane, N = mg*cos(theta). Inside lift accelerating downward, N < mg.

• Tension in strings: In Atwood machine or pulley systems, tension is NOT equal to weight. Tension = m1*m2*g/(m1 + m2) for two masses connected by ideal pulley.

• Work-energy theorem applies in ALL frames: Work by ALL forces equals change in KE. In non-inertial frames, include pseudo-force work.

• Potential energy is relative: Choose reference point wisely. Negative PE means object is bound to the system (gravity, nuclear). Escape velocity derived from KE + PE = 0.

• Heat vs temperature: Heat is energy transfer. Temperature is kinetic energy measure. Q depends on mass and specific heat; temperature depends only on average KE of particles.

• First law sign convention: delta_U = Q - W. If Q is positive (heat in), delta_U increases. If W is positive (gas expands), delta_U decreases. Many sign errors here.

• Capacitance is INDEPENDENT of voltage and charge: C = epsilon_0*A/d only. More charge -> more voltage, but C unchanged. Dielectric constant K multiplies C by K factor.

• Kirchhoff's laws: At junction, sum of currents IN = sum of currents OUT (current conservation). Around loop, sum of EMF = sum of IR drops (energy conservation).

• Magnetic field does NO work: F = qvB is always perpendicular to v. Magnetic field changes direction of motion, not speed. KE unchanged by B field alone

CHEMISTRY CHEAT SHEET | 45 Questions | 180 Marks

CHEMISTRY CHEAT SHEET - NEET UG 2026 (LAST 7 DAYS REVISION)

TOP 20 NAMED REACTIONS (ORGANIC CHEMISTRY)

- Aldol Condensation: Aldehyde/Ketone + Aldehyde/Ketone -> beta-hydroxy carbonyl (base)
- Cannizzaro Reaction: Formaldehyde (no alpha-H) -> Formic acid + Methanol (base)
- Clemmensen Reduction: Carbonyl compound + Zn-Hg -> Alkane (HCl)
- Wolff-Kishner Reduction: Carbonyl compound + N2H4 -> Alkane (KOH/heat)
- Sandmeyer Reaction: Aryl diazonium + CuX -> Aryl halide (copper)
- Gattermann Reaction: Aryl diazonium + Cu powder -> Aryl halide (mild)
- Friedel-Crafts Alkylation: Benzene + Alkyl halide -> Alkylbenzene (AlCl3)
- Friedel-Crafts Acylation: Benzene + Acid chloride -> Aromatic ketone (AlCl3)
- Grignard Reaction: Carbonyl + RMgX -> Alcohol/Alkene (ether)
- Wittig Reaction: Carbonyl + Phosphorane ylide -> Alkene (organic solvent)
- Williamson Ether Synthesis: Alkoxide + Alkyl halide -> Ether (SN2)
- Esterification: Carboxylic acid + Alcohol -> Ester (H2SO4/heat)
- Saponification: Ester + NaOH -> Alcohol + Carboxylate salt (aqueous)
- Diels-Alder Reaction: Diene + Alkene -> Cyclohexene derivative (heat)
- Perkin Reaction: Aromatic aldehyde + Anhydride -> Unsaturated acid (base)
- Reformatsky Reaction: Carbonyl + Zn + Ester -> beta-hydroxy ester (solvent)
- Claisen Condensation: Ester + Ester -> beta-diketone/keto-ester (base)
- Haloform Reaction: Methyl ketone + X2 -> Carboxylic acid + Haloform (base)
- Favorskii Rearrangement: alpha-Halo ketone -> Carboxylic acid derivative (base)
- Benzoin Condensation: Benzaldehyde + Benzaldehyde -> Benzoin (CN-)

ORGANIC CHEMISTRY CONVERSIONS (HIGH YIELD)

- Alkane -> Alkene: dehydrogenation (heat/catalyst)
- Alkene -> Alkane: hydrogenation (H2/Ni or Pd)
- Alkene -> Alkyl halide: HX addition (Markovnikov)
- Alkene -> Diol: OsO4 or KMnO4 (aqueous)
- Alkene -> Epoxide: peroxyacid (MCPBA)
- Alkane -> Alcohol: KMnO4 or chromic acid (oxidation)
- Alcohol -> Aldehyde: PCC or DMP (mild oxidation)
- Aldehyde -> Carboxylic acid: KMnO4 or H2O2 (strong oxidation)
- Aldehyde -> Alcohol: NaBH4 or LiAlH4 (reduction)
- Ester -> Alcohol: LiAlH4 (complete reduction)
- Ester -> Carboxylic acid: aqueous NaOH (saponification)
- Carboxylic acid -> Ester: ROH + H2SO4 (Fischer)
- Amine -> Diazonium salt: HNO2 + amine (cold)
- Diazonium -> Phenol: warm water (hydrolysis)
- Benzene -> Nitrobenzene: HNO3 + H2SO4 (nitration)

PHYSICAL CHEMISTRY FORMULAS

Mole Concept

- Molarity (M) = moles/volume(L)
- Molality (m) = moles/mass of solvent(kg)
- Normality (N) = equivalents/volume(L)
- Mole fraction (x) = moles of component/total moles
- ppm = (mass of solute/mass of solution) x 10^6

Solutions & Colligative Properties

- Raoult's Law: P_A = x_A * P_A^0
- Relative lowering of vapor pressure: (P_0 - P)/P_0 = x_solute

- Elevation of boiling point: delta-T_b = K_b * m
- Depression of freezing point: delta-T_f = K_f * m
- Osmotic pressure: pi = iMRT
- Van't Hoff factor: i = observed colligative property/theoretical value

Electrochemistry

- Faraday's First Law: mass deposited = (M * Q)/(n * F), where F = 96500 C/mol
- Nernst Equation: E_cell = E_0 - (0.0592/n) * log(Q) at 25C
- E_0_cell = E_0_cathode - E_0_anode
- delta-G = -nFE_cell
- Conductivity: kappa = G * l/A, where G is conductance
- Molar conductivity: lambda-m = kappa/M

Chemical Kinetics

- Rate law: rate = k[A]^m[B]^n, where m+n = order
- For first order: k = (2.303/t) * log([A]_0/[A]_t)
- For second order: k = 1/[A]_t - 1/[A]_0 * 1/t
- Half-life (1st order): t_1/2 = 0.693/k
- Arrhenius equation: ln(k2/k1) = (E_a/R) * (T2 - T1)/(T1*T2)
- Temperature coefficient: rate increases by 2-3 times for every 10C rise

Thermodynamics

- delta-H = energy absorbed at constant pressure
- delta-G = delta-H - T*delta-S (spontaneity criterion)
- delta-G = -RT*ln(K) at equilibrium
- Hess's Law: delta-H_reaction = sum of delta-H products - sum of delta-H reactants
- Heat capacity: q = n*C*delta-T
- Work (PV work): w = -P_ext*delta-V
- delta-U = q + w (First Law)

INORGANIC CHEMISTRY QUICK FACTS

s-Block Elements (Alkali metals & Alkaline earth metals)

- Alkali metals: highly reactive, never found free in nature, stored under mineral oil
- Li is smallest, Cs is most reactive alkali metal
- Be has highest charge density among alkaline earth metals, hence most polarizing
- Diagonal relationship: Li-Mg, Be-Al, B-Si show similar properties

p-Block Elements

- Boron: electron deficient, forms electron pair acceptor compounds
- Carbon: forms 4 covalent bonds, allotropes include diamond, graphite, buckminsterfullerene
- Nitrogen: strong N-N triple bond makes it unreactive; N2 has high bond dissociation energy
- Oxygen: divalent, highly electronegative, forms peroxides and superoxides
- Halogens: Fluorine is most electronegative, Iodine undergoes disproportionation easily
- Noble gases: highly stable due to complete octet, used in inert atmosphere

d-Block Elements (Transition metals)

- Variable oxidation states due to close energy of d and s orbitals
- First ionization energy relatively constant across a period
- Atomic radius decrease across period due to lanthanide contraction (for 5d elements)
- Colored compounds due to d-d transitions and partially filled d orbitals
- Paramagnetism increases with number of unpaired electrons

Coordination Compounds

- Coordination number = number of ligands bonded to central metal ion
- Primary valency = oxidation state; Secondary valency = coordination number
- Werner's theory: metal forms primary (ionic) and secondary (coordinate) bonds
- CFSE (Crystal Field Stabilization Energy) explains color and reactivity
- Chelate complexes are more stable than non-chelate complexes
- Ambidentate ligands (NO2-, SCN-) can bind through different atoms

Qualitative Analysis

- Group I cations: Pb2+, Ag+, Hg2^2+ (precipitate as chlorides with HCl)
- Group II cations: Cu2+, Cd2+, Bi3+, Sn2+ (precipitate as sulfides with H2S in acidic medium)
- Group III cations: Fe3+, Al3+, Cr3+ (precipitate as hydroxides/sulfides in basic medium)
- Group IV cations: Ba2+, Ca2+, Sr2+ (precipitate as carbonates)

- Group V cations: Na+, K+, NH4+ (identified by flame test or specific reagents)

General Inorganic Trends

- Thermal stability decreases down the group for binary compounds
- Basic character of oxides increases down the group
- Covalent character increases with increasing charge density of cation
- Lattice enthalpy decreases with increase in size of ions
- Hydration enthalpy decreases with increase in size of ions

CHEMISTRY REACTION CONDITIONS TO REMEMBER

- Esterification: carboxylic acid + alcohol, H2SO4 catalyst, heat (60-70C), water removal
- Nitration: benzene + HNO3, H2SO4 catalyst, temperature control (0-10C), electrophilic substitution
- Halogenation: alkane + X2, UV light or heat, free radical substitution
- Hydrogenation: alkene + H2, Ni/Pd/Pt catalyst, room temperature/heat, addition
- Hydration: alkene + H2O, H2SO4 catalyst, room temperature, Markovnikov addition
- Oxidation of alcohols: alcohol + KMnO4/K2Cr2O7, H2SO4 medium, temperature varies
- Friedel-Crafts: benzene + RX/RCOCl, AlCl3 catalyst, room to mild heat, no NH2/OH on ring
- Grignard: carbonyl + RMgX, anhydrous ether, inert atmosphere, -10 to 0C
- Aldol condensation: 2 carbonyl, NaOH/KOH base, room temperature, beta-hydroxy product
- Diels-Alder: diene + dienophile, no catalyst usually, 100-200C, syn addition
- Saponification: ester + NaOH, aqueous ethanol, heat (60-80C), hydrolysis
- Cannizzaro: HCHO + conc base, room temperature, no alpha-H required
- Sandmeyer: ArN2+ + CuX, CuX salt, warm (50-60C), copper catalyzed
- Williamson: alkoxide + RX, aprotic solvent, room to mild heat, SN2 mechanism
- Hydrolysis: halide/ester + H2O, acid or base catalyst, varies with substrate reactivity

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PERIODIC TABLE TRENDS

• Atomic radius: increases down a group, decreases across a period (nuclear charge increases faster than shielding)

• Ionization energy: increases across a period, decreases down a group (easier to remove electron from larger atom)

• Electronegativity: increases across a period, decreases down a group (Fluorine most, Francium least)

• Electron affinity: generally increases across a period with exceptions (Group 2 and 18 have low values)

• Electropositive character: increases down a group and towards left of periodic table

• Nonmetal

EXAM DAY MASTER PLAN

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Documents Checklist (Must Carry)

- Admit Card: Original printed copy (non-negotiable entry requirement)
- Government ID Proof: Aadhar card, PAN card, or Passport (must match admit card name)
- Passport Photos: 2-3 copies of same size as admit card photo
- Dress Code: Light cotton clothes in neutral colors (avoid heavy jewelry/metallic items)
- Pen/Pencil: Black ballpoint pen for OMR sheet marking
- Calculator: Only if permitted (check admit card instructions)
- Water Bottle: Empty bottle allowed inside exam hall
- Transparent Pouch: Carry documents in clear/transparent bag only
- Admit Card Copy: Take 1-2 photocopies as backup

Night Before Exam (Day -1 Schedule)

- 6:00 PM: Have a light, early dinner with foods you normally eat (avoid spicy/heavy items)
- 7:00 PM: Do light stretching or 15-minute walk to reduce anxiety
- 8:00 PM: Review exam center location, route, and travel time calculation
- 9:00 PM: Lay out all documents and exam day clothes; check admit card one final time
- 9:30 PM: Set 2-3 alarms on phone and watch for morning wake-up
- 10:00 PM: Sleep (mandatory) - aim for 7-8 hours minimum

Exam Morning Schedule

- 5:30 AM: Wake up, drink water, freshen up
- 6:00 AM: Light breakfast (banana, bread, milk, or whatever suits your stomach)
- 6:30 AM: Shower and get dressed in cool, comfortable clothes
- 7:00 AM: Double-check all documents in transparent pouch
- 7:30 AM: Leave for exam center (aim to reach 45 minutes early)
- 8:00 AM: Reach exam center, locate your room, sit at assigned desk

Time Management During Exam (3 hours 20 minutes total)

First 10 minutes: Read all 180 questions quickly (2-3 seconds per question), mark easy vs difficult questions mentally, do NOT start attempting yet

Biology Section (90 minutes recommended):

- Minutes 11-50: Attempt all easy and moderate questions (target 35-40 questions)
- Minutes 51-90: Attempt remaining biology questions with careful verification
- Do not spend more than 1 minute per question in this section

Chemistry Section (50 minutes recommended):

- Minutes 91-110: Organic chemistry (straightforward questions)
- Minutes 111-135: Inorganic chemistry (factual questions)
- Minutes 136-140: Physical chemistry (calculation-based, skip if stuck)
- Maintain speed: 20 seconds per question average

Physics Section (35 minutes recommended):

- Minutes 141-165: Attempt formula-based and concept questions
- Minutes 166-175: Revisit skipped questions with fresh perspective
- Physics requires accuracy over speed; verify calculation twice

Last 15 minutes (Minutes 166-200): Review marked answers, check OMR sheet for stray marks, verify question number matches answer number, fill any remaining attempted questions

Smart Attempt Strategy

1. Read question stem first, then options - this saves time in elimination process
2. Negative marking rule: Each wrong answer = -1 mark, so skip if less than 60% confident
3. Use elimination technique: Cross out 1-2 obviously wrong options, then choose from remaining
4. Skip questions with unusual wording, complex calculations, or unfamiliar concepts on first pass
5. Mark for review: Use pencil to lightly mark questions you want to revisit (max 20-25 questions)
6. Attempt in order: Biology (easier baseline), Chemistry (moderate), Physics (hardest, risk-taking allowed)
7. Never change answers in last 5 minutes unless absolutely certain - first instinct is usually correct
8. Numerically marked OMR: Verify each filled bubble is completely darkened, no half-marks
9. Time-locked sections: If stuck on 1 question for 2 minutes, skip immediately (do not waste time)
10. Final 5 minutes: Check blank spaces, ensure no question is left unmarked unless deliberately skipped

Common Exam Day Mistakes to AVOID

1. Arriving late - Fix: Reach exam center 45 minutes before reporting time, not 10 minutes

2. Forgetting admit card or ID - Fix: Keep documents in visible pocket; do final check 1 hour before leaving home

3. Panic reading (skipping question details) - Fix: Read every question at normal speed; rushing causes careless errors

4. Attempting all 180 questions - Fix: Attempt only questions you are 60%+ confident about; skip rest deliberately

5. Changing answers repeatedly - Fix: Trust your first instinct; second-guessing creates confusion and wrong marks

6. OMR marking errors (wrong row/column) - Fix: Mark one question, verify immediately; do not batch mark answers

7. Spending 5+ minutes on one question - Fix: Use 2-minute rule; if unsure after 2 minutes, skip and return later

8. Ignoring negative marking impact - Fix: Calculate: 1 wrong = -1 mark, so 5 wrong answers lose 5 marks total; skip if doubtful

Final Motivational Message

You have prepared hard for this moment - trust your preparation and let your knowledge flow naturally. Remember that NEET is not about perfection but about smart attempt strategy and staying calm under pressure. Thousands before you have succeeded with similar effort, and you absolutely can too. Walk into that exam hall with your head high, give your best, and know that you have already won by showing up prepared. Your dream medical career is within reach - go get it!