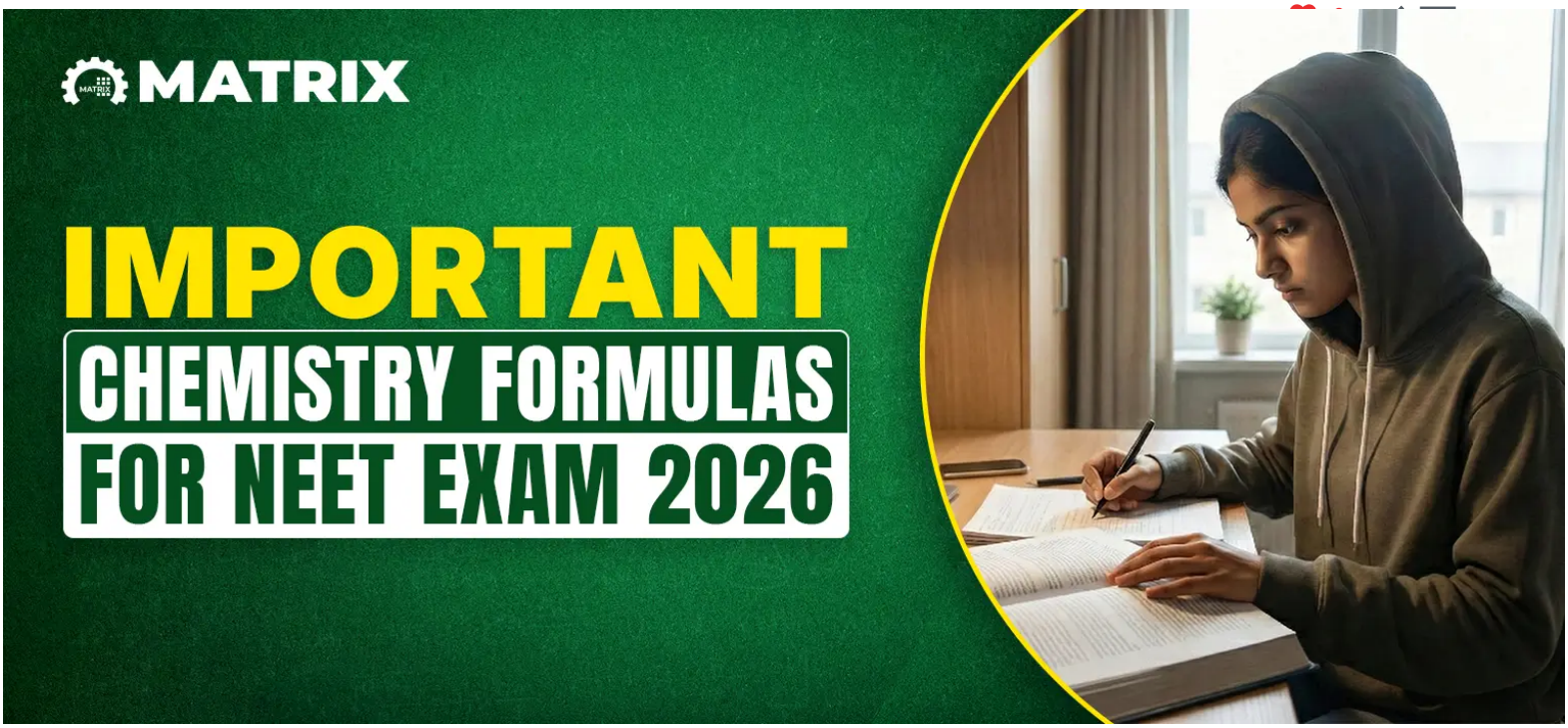
Important Chemistry Formulas for NEET Exam 2026



NEET Physical Chemistry Important Formulas 2026

In Chemistry, Physical Chemistry is the most crucial area with the maximum number of formulas. Matrix Academy makes the formula practice approach very easy for its students through combining theoretical knowledge and derivation skills because practising formulas without understanding their derivation often leads to mistakes.

For a complete practice of the NEET Physical Chemistry important formulas, Matrix creates a unit-wise list of important formulas as follows-

Unit 1: Some Basic Concepts in Chemistry

Unit 1 formulas are related to solving quantitative problems, which can be considered as foundational formulas of this subject.

$$\text{Mole concept:} n = m/M$$

$$\text{Number of Moles:} n = \frac{V_{\text{STP}}}{22.4\ \text{L mol}^{-1}}$$

$$\text{Molarity (M)}: M = \frac{\text{Moles of solute}}{\text{Volume of solution (L)}}$$

$$\text{Molality}: m = \frac{\text{Moles of solute}}{\text{Mass of solvent (kg)}}$$

$$\text{Normality}: N = \frac{\text{Equivalents}}{\text{Litre}}$$

$$\text{Percentage composition: } \left(\frac{\text{Mass of element}}{\text{Molar mass}}\right) \times 100$$

$$\%\ \text{Purity: } \left(\frac{\text{Mass of pure substance}}{\text{Total mass}}\right) \times 100$$

$$\text{Equivalent Weight (E)}: E = \frac{\text{Molar Mass (M)}}{\text{n-factor}} \text{where, } n\text{-factor is valency/electrons transferred}$$

Unit 2: Atomic Structure

The formulas from the Atomic Structure unit are numerically difficult, which is mainly related to quantised energy levels, particle-wave duality, and the arrangement of electrons within an atom.

$$\text{de Broglie wavelength: } \lambda = \frac{h}{mv}$$

$$\text{Energy of electron}: E_n = -\frac{13.6}{n^2}\ \text{eV}$$

$$\text{Radius of orbit}: r_n = \frac{0.529\, n^2}{Z}\ \text{Å}$$

$$\text{Heisenberg uncertainty}: \Delta x \cdot \Delta p \geq \frac{h}{4\pi}$$

$$\text{Energy of Photon}: \Delta x \cdot \Delta p \geq \frac{h}{4\pi}$$

$$\text{Bohr's Model (for Hydrogen/Hydrogen-like atoms):}$$

$$\text{Quantized Angular Momentum: } \Delta x \cdot \Delta p \geq \frac{h}{4\pi}$$

$$\text{Energy Levels}: E_n = -\frac{2.178 \times 10^{-18} Z^2}{n^2}\ \text{J/atom} = -\frac{13.6 Z^2}{n^2}\ \text{eV/atom}$$

$$\text{Bohr Radius (Radius of nth orbit): } r_n = \frac{0.529\, n^2}{Z}\ \text{Å}$$

$$\text{Velocity in nth orbit:} v = \frac{2.18 \times 10^6\ Z}{n}\ \text{m/s}$$

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Unit 3: Chemical Bonding and Molecular Structure

The formulas in this unit are important to evaluate the exact structure and properties of molecules. Thus, practising these formulas demands an effective level of conceptual understanding.

$$\text{Formal charge:} F_C = V - \left(L + \frac{B}{2}\right)$$

$$\text{Bond order (MO theory):} \frac{N_b - N_a}{2}$$

$$\text{Dipole moment:} \mu = q \times r$$

$$\text{Hybridisation formula: } \frac{1}{2}(V + M - C + A)$$

Unit 4: Chemical Thermodynamics

The Chemical Thermodynamics section is crucial to building clear concepts regarding calculations and the transformation of energy.

$$\text{First law: } \Delta U = q + w$$

$$\text{Work Done (general): } W = -P\,\Delta V$$

$$\text{Enthalpy change:} \Delta H = \Delta U + \Delta nRT$$

$$\text{Gibbs free energy: } \Delta G = \Delta H - T\Delta S$$

$$\text{Hess's law:} \Delta H_{reaction} = \Sigma \Delta H_{products} - \Sigma \Delta H_{reactants}$$

$$\text{Standard Enthalpy of Reaction: } \Delta H^\circ_{\text{rxn}} = \sum \Delta H^\circ_f(\text{products}) - \sum \Delta H^\circ_f(\text{reactants})$$

Unit 5: Solutions

This unit demands extensive practice of formula-based numerical formulas to identify the properties of liquid solutions related to quantitative relationships.

$$\text{Raoult's law: } P = X \times P^0$$

$$\text{Mass Percentage:Mass \% of element} = \frac{\text{Mass of element in the compound}}{\text{Molar mass of the compound}} \times 100$$

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$$\text{Volume Percentage: Volume \%} = \frac{\text{Volume of solute (mL)}}{\text{Volume of solution (mL)}} \times 100$$

$$\text{Osmotic pressure: } \pi = CRT$$

$$\text{Elevation in boiling point: } \Delta T_b = K_b\, m$$

$$\text{Depression in freezing point:} \Delta T_f = K_f\, m$$

Unit 6: Equilibrium

This unit is considered the core of the Chemical Reaction section, where formulas are combined in this unit to solve practical numerical problems of solution acidity, reaction direction, and predicting system behaviour.

$$\text{Equilibrium constant:} K_c = \frac{[\text{products}]}{[\text{reactants}]}$$

$$Relationship : K_p = K_c\,(RT)^{\Delta n}$$

$$pH : \text{pH} = -\log[\text{H}^+]$$

$$\text{Ionic product of water:} K_w = [H^+][OH^-]$$

$$\text{Law of Mass Action\& Equilibrium Constant:} K_c = \frac{[C]^c[D]^d}{[A]^a[B]^b}$$

Unit 7: Redox Reactions and Electrochemistry

Redox Reactions and Electrochemistry is a high-weightage chapter in the NEET Physical Chemistry section. Every year in the final exam, approximately 2-3 questions are directly drawn from this section, where these formulas are related to chemical reactions and electrical energy.

$$\text{Nernst equation:} E = E^\circ - \frac{0.0591}{n}\log Q$$

$$\text{Faraday's law: } m = \frac{Q \times M}{nF}$$

$$\text{Cell EMF: } E_{\text{cell}} = E_{\text{cathode}} - E_{\text{anode}}$$

$$\text{Gibbs Free Energy \& EMF Relation: } \Delta G = -nFE_{\text{cell}}$$

$$\text{Conductance: } G = \frac{1}{R}$$

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Unit 8: Chemical Kinetics

The Chemical Kinetics section evaluates the proficiency of chemical reactions, where all the formulas in this section define the rate of chemical reactions and their mechanism. These formulas can be easily learned by clearing fundamental concepts.

$$\text{Rate law:Rate} = k[A]^n$$

$$\text{First-order reaction: } k = \frac{2.303}{t}\log\left(\frac{a}{a-x}\right)$$

$$\text{Overall Order: } n = m + n$$

$$\text{Half-life (first order): } t_{1/2} = \frac{0.693}{k}$$

$$\text{Arrhenius equation: } k = Ae^{-\frac{E_a}{RT}}$$

$$\text{Rate of Reaction (Average Rate): } -\frac{\Delta[\text{Reactant}]}{\Delta t} = +\frac{\Delta[\text{Product}]}{\Delta t}$$

NEET Inorganic Chemistry Important Formulas

The teaching methodology of Inorganic Chemistry at Matrix Academy is highly organised under the guidance of Narendra Kok Sir, who explains difficult formulas with conceptual clarity and pattern recognition behind each formula. This section is majorly theory-oriented but also consists of some important questions, which can be solved with the help of formulas.

This unit of Chemistry has various formula-based topics like coordination chemistry, block chemistry, and periodic trends. So, you should practice all the standard formulas of these topics.

Unit 9: Classification of Elements and Periodicity

According to Narendra Kok Sir, these formulas can only be practised if the theoretical part is very strong. Through clarity in theoretical sections, you can practice the chemical and physical properties of various elements. All of the important formulas in this unit are related to the properties of periodic trends.

$$\text{Effective nuclear charge: } Z_{\text{eff}} = Z - \sigma$$

Pauling electronegativity difference: $\Delta\chi = 0.208\sqrt{\Delta E}$

Ionic character:

Unit 10: p-Block Elements

This section of Inorganic Chemistry is compound structure, properties, and periodic trends oriented. This is not a simple mathematical formula-based chapter, which is directly based on structural representations and chemical equations.

Oxidation state calculation rules: H_2SO_4

Acidic strength trend formulas (relative electronegativity concept): Higher EN $\Rightarrow$ Stronger A

Ozone formation: $3O_2 \rightleftharpoons 2O_3$

s-block: ns^{1-2}

p-block: $ns^2\ np^{1-6}$

Unit 11: d and f Block Elements

The d and f blocks unit can be easily solved with their respective quantitative formulas, which are related to general electronic structures, chemical reactions, and description-based chemical properties.

d-block: $(n-1)d^{1-10}\ ns^{0-2}$

f-block: $(n-2)f^{1-14}\ (n-1)d^{0-1}\ ns^2$

Magnetic moment: $\mu = \sqrt{n(n+2)}\ \text{BM}$

Crystal field stabilisation energy (CFSE): $\text{CFSE} = (-0.4n_o + 0.6n_t)\ \Delta_o$

Spin-Only Magnetic Moment formula: $\mu = \sqrt{n(n+2)}\ \text{BM}$

Unit 12: Coordination Compounds

The section is very important, and every year, 2-3 questions appear from this section in the final exam. This section is reaction-oriented instead of mathematical formulas related to theories and nomenclature rules. So, Matrix Academy experts highlight important topics below-

Coordination number definition key points: Donor Atoms, Sigma Bonds, Secondary Valency,

$$\text{Werner's formula: } [M_a X_b (L)_c]$$

$$\text{Stability Constant: } K_f = \frac{[\text{Complex}]}{[\text{Metal}][\text{Ligand}]}$$

Isomer count formulas (geometrical and optical):

Complex Type	Geometrical Isomers	Optical Isomers
$[MA_2B_2]$	2 (cis/trans)	0
$[MA_2B_2C_2]$	3 (fac/mer)	0
$[MA_3B_3]$	2 (fac/mer)	0
$[M(AA)_3]$	0	$2\,(\Delta/\Lambda)$

NEET Organic Chemistry Important Formulas 2026

NEET Organic Chemistry is a section with specific formulas, where it is crucial to understand their pattern formation with the classification of various compounds. Matrix faculty Birbal Sir finds that all formulas are based on structural relations, reaction conditions, and general equations. There is no need for heavy practice of numerical formulas for this unit; you should practice with reaction-based expressions, tests, and standard formulas.

Unit 13: Purification and Characterisation

The formulas under this unit are very useful in finding the exact and pure organic compounds of different elements. All of the formulas in this section are easy to recall and generally % oriented.

$$\%\text{ Element: }\%\text{ of Element} = \frac{\text{Mass of Element in Compound}}{\text{Molar Mass of Compound}} \times 100$$

$$\text{Dumas Method: } \%N = \frac{14 \times \text{Volume Correction}}{\text{Mass}}$$

$$\text{Molecular Formula from Empirical Formula: } (\text{Empirical Formula})_n$$

$$\text{Victor Meyer Method for Molecular Mass: } M = \frac{w \times 22400}{V}$$

Lassaigne's Test Reactions:

Element	Reagent	Observation	Reaction/Formula
Nitrogen (N)	$FeSO_4 + H_2SO_4 \rightarrow Na[Fe(CN)_5NO]$	Blue ppt (Prussian blue)	$[R-CN+Na- > N$
Sulfur (S)	$NaNO_3$ / NaOH + $Pb(Ac)_2$ or Na2SO4 + BaCl2	Black ppt (PbS) / White ppt (BaSO4)	$R-S+Na- > Na2$
Nitrogen + Sulfur (N + S)	Na + NaOH + $FeSO_4 \rightarrow$ Ferric nitroprusside	Violet/red color	$[R-CN-S+Na-$
Halogens (Cl, Br, I)	$AgNO_3$ in dilute HNO_3	Precipitate: AgCl/AgBr/AgI	$[R-Cl+Na- > Na$
Carbon (C) & Hydrogen (H)	Ignition test	Burns with blue flame $\rightarrow CO_2 + H_2O$	$[Organic\ Compound$

Unit 14: Basic Principles of Organic Chemistry

This section is a mix of theoretical and practical considerations because it includes most of the important topics from the Organic Chemistry section. Some of the important topics are bonding (hybridisation), isomerism, functional groups, homologous series, reactions, intermediates, purification methods, and electronic effects.

$$\text{Alkanes (Saturated): } \mathrm{C}_n\mathrm{H}_{2n+2}$$

$$\text{Alkenes (One double bond): } \mathrm{C}_n\mathrm{H}_{2n}$$

$$\text{Alkynes (One triple bond): } \mathrm{C}_n\mathrm{H}_{2n-2}$$

$$\text{Cycloalkanes: } \mathrm{C}_n\mathrm{H}_{2n} \text{ (same as alkenes)}$$

$$\text{Percentage of Carbon: } \%\mathrm{C} = \frac{\text{Weight of } \mathrm{CO_2} \text{ formed}}{\text{Weight of organic sample}} \times \frac{12}{44} \times 100$$

$$\text{Percentage of Hydrogen (\%H): } \%\mathrm{H} = \frac{\text{Weight of } \mathrm{H_2O} \text{ formed}}{\text{Weight of organic sample}} \times \frac{2}{18} \times 100$$

Percentage of Nitrogen:

1. Dumas Method:

$$\%\mathrm{N} = \frac{\text{Volume of } \mathrm{N_2} \text{ evolved}}{22400} \times \frac{14 \times 100}{\text{Weight of sample}}$$

$$\%\mathrm{N} = \frac{\text{Volume of acid} \times \text{Normality of acid} \times 1.4}{\text{Weight of sample}} \times 100$$

Percentage of Halogen (%X, e.g., Cl, Br, I) (Carius Method):

$$\%\mathrm{X} = \frac{\text{Atomic weight of X}}{\text{Molecular weight of AgX}} \times \frac{\text{Weight of AgX formed}}{\text{Weight of organic sample}} \times 100$$

Inductive Effect Order:

Type	Effect	Example/Order
–I	Electron-withdrawing	$F > NO2 > Cl > Br > I > C$
+I	Electron-donating	$H < CH3 < C2H5 < C3H7$

Resonance Energy Concept:

$$\text{Resonance Energy (RE)} = E_{\text{hypothetical}} - E_{\text{actual}}$$

Carbocation Stability Order:

Type of Carbocation	Stability
$CH3^+$	Least stable
Primary (1°)	↑
Secondary (2°)	↑↑
Tertiary (3°)	Most stable
Allylic/Benzylic	More stable due to resonance

$$\text{pKa and Acidity Relation:} \mathrm{pKa} = -\log_{10}(\mathrm{Ka})$$

Unit 15: Hydrocarbons

The chemical reactions and formulas in this section are generally hydrogen and carbon atoms oriented, which can be learned with specific chemical equations.

$$\text{General formula of Alkanes: } C_nH_{2n+2}$$

$$\text{General formula of Alkenes: } C_nH_{2n}$$

$$\text{Alkynes: } C_nH_{2n-2}$$

$$\text{Aromatic: } C_6H_6$$

$$\text{Wurtz Reaction: } 2R\text{–}X + 2Na \xrightarrow{\text{dry ether}} R\text{–}R + 2NaX$$

$$\text{Combustion: } C_nH_{2n+2} + \frac{3n+1}{2}O_2 \rightarrow n\,CO_2 + (n+1)\,H_2O + \text{Energy}$$

$$\text{Halogenation: } CH_4 + Cl_2 \xrightarrow{\text{sunlight}} CH_3Cl + HCl$$

$$\text{Ozonolysis: } R_2C = CR_2 \xrightarrow{O_3} \text{Ozonide} \xrightarrow{Zn/H_2O} 2\,R_2C = O$$

$$\text{Acidity of Terminal Alkynes: } CH \equiv CH + NaNH_2 \rightarrow CH \equiv C^-Na^+ + NH_3$$

$$\text{Friedel–Crafts Alkylation: } C_6H_6 + R\text{–}Cl \xrightarrow{AlCl_3\ (\text{anhydrous})} C_6H_5R + HCl$$

Unit 16: Organic Compounds Containing Halogens

This unit is divided into 3 major sections, where this section is for the Halogens. The key topics of this unit are alkyl halides (R-X) and aryl halides (Ar-X).

Nucleophilic Substitution:

$$1.\ SN\,2 : SN2: \quad R\text{–}X + Nu^- \rightarrow R\text{–}Nu + X^-$$

$$2.\ SN\,1: R\text{–}X \rightarrow R^+ + X^-$$

$$\text{Elimination (E2): } R\text{–}X + \text{alc.}\backslash\ KOH \rightarrow \text{Alkene} + KX + H_2O$$

$$\text{Grignard Reagent: } R\text{–}X + \text{alc.}\backslash\ KOH \rightarrow \text{Alkene} + KX + H_2O$$

$$\text{Finkelstein Reaction (Halogen Exchange): } R\text{–}Cl + NaI \xrightarrow{\text{acetone}} R\text{–}I + NaCl$$

$$Ar\text{–}H + X_2 \xrightarrow{FeX_3\ /\ \text{Lewis acid}} Ar\text{–}X + HX$$

$$Ar\text{–}X + HX$$

Name-Based Compounds & Formulas:

- **Chloroform:**

$$CHCl_3$$

- **Iodoform:**

$$CHI_3$$

- **DDT:**

$$(ClC_6H_4)_2CHCCl_3$$

- **Freons (CFCs):**

$$CCl_2F_2$$

Halogen:

$$R\text{–}X \xrightarrow{Na} NaX$$

% Percentage of Halogen:

$$\%X = \frac{\text{Atomic Weight of X}}{\text{Molecular Weight of AgX}} \times \frac{\text{Weight of AgX}}{\text{Weight of sample}} \times 100$$

Unit 17: Organic Compounds Containing Oxygen

This unit is very useful in creating a base-level knowledge of the various organic topics, like Alcohol, Ketones, Ethers, Aldehydes, and many more. The key formulas of this unit are as follows-

Unit General Formulas:

- **Alcohol:**

$$R\text{–}OH$$

- **Phenol:**

$$Ar\text{–}OH$$

- **Ether:**

$$R\text{–}O\text{–}R'$$

Important Reactions:

1. Williamson Ether Synthesis: $\mathrm{R–X + NaOR' \rightarrow R–O–R' + NaX}$

Alcohols: $\mathrm{RCH_2CH_2OH \xrightarrow{conc.\ H_2SO_4,\Delta} CH_2=CH_2 + H_2O}$

Aldehydes: $\mathrm{R–CHO}$

Ketone: $\mathrm{R–CO–R'}$

Carboxylic Acids: $\mathrm{R–COOH}$

Unit 18: Organic Compounds Containing Nitrogen

The unit offers important information regarding the various organic compounds of Nitrogen, where all important formulas are as follows-

1. Amines: $\mathrm{(R–NH_2,\ R_2NH,\ R_3N)}$

Reduction of Nitro Compounds: $\mathrm{R–NO_2 \xrightarrow{Sn/HCl \ or \ LiAlH_4} R–NH_2}$

Reactions-Basicity: $\mathrm{RNH_2 > NH_3 > ArNH_2}$

Alkylation: $\mathrm{R–NH_2 + R'–X \rightarrow R_2NH + HX}$

Diazonium Salt: $\mathrm{(Ar–N_2^+X^-)}$

Amides: $\mathrm{(R–CONH_2)}$

Nitro Compounds: $\mathrm{(R–NO_2)}$

Unit 19: Biomolecules

The Biomolecules unit has various mathematics-oriented formulas, which are mainly related to the molecular structures. The important formulas of this section are as follows-

Types of Biomolecules:

- Monosaccharides: $\mathrm{C_6H_{12}O_6}$
- Disaccharides: $\mathrm{C_{12}H_{22}O_{11}}$
- Polysaccharides: $\mathrm{(C_6H_{10}O_5)_n}$
- Amino Acids: $\mathrm{C_2H_5NO_2}$
- Nucleic Acids: $\mathrm{C_5H_{10}O_4}$

Hydrolysis Reactions:

$$\text{2. Lactose: Lactose} + \text{H}_2\text{O} \rightarrow \text{Glucose} + \text{Galactose}$$

$$\text{Starch: Starch} + n\,\text{H}_2\text{O} \overset{\text{H}^+}{\rightarrow} n\,\text{Glucose}$$

Unit 20: Principles Related to Practical Chemistry

The unit is the final chapter of the Chemistry syllabus, which has various logic-based chemical equations.

$$\text{Molecular Weight: Molecular Weight} = 2 \times \text{Vapour Density}$$

Percentage Composition:

$$\text{1. \% Carbon: \%C} = \frac{\text{Weight of CO}_2\text{ evolved} \times \frac{12}{44}}{\text{Weight of sample}} \times 100$$

$$\text{2. \% Hydrogen: \%H} = \frac{\text{Weight of H}_2\text{O evolved} \times \frac{2}{18}}{\text{Weight of sample}} \times 100$$

$$\text{Molarity Calculation: } M = \frac{\text{moles of solute}}{\text{volume of solution (L)}}$$

$$\text{Normality (N) Calculation: N } = \frac{\text{Number of gram equivalents}}{\text{Volume of solution (L)}}$$

$$\text{Dilution Formula: } M_1V_1 = M_2V_2$$

What is the role of NEET Chemistry formulas for the upcoming 2026 exam?

The NEET Chemistry is a formula-oriented subject in the NEET exam, where the Physical Chemistry section is specially formula-based. Approximately 30-40% of the questions in Chemistry can be solved by developing conceptual clarity regarding formula-based questions.

Which area of the NEET Chemistry consists of the maximum number of formulas?

Out of the 3 areas of the NEET Chemistry, Physical Chemistry holds the highest weightage of formula-based questions, where approximately 50-55% questions can be solved with the help of formulas. Some of the important formula-based chapters in NEET Physical Chemistry are equilibrium, thermodynamics, kinetics, solutions, and electrochemistry.

How can I ensure a systematic practice of Chemistry formulas for the NEET 2026 exam?

Matrix Academy believes that NEET aspirants can practice Chemistry formulas in their own style of learning capabilities to make the learning process more effective. Matrix recommends that you first understand the