

NEET Chemistry Revision Notes

Class 11th and 12th Chemistry Subject Weightage

Class 11th Chemistry syllabus.		Class 12th Chemistry syllabus.	
Chapter	Weightage	Chapter	Weightage
Some Basic Concepts of Chemistry	2%	Solid State	1%
Structure of Atom	5%	Solutions	2%
Classification of Elements and Periodicity in Properties	2%	Electrochemistry	2%
Chemical Bonding and Molecular Structure	3%	Chemical Kinetics	5%
States of Matter: Gases and Liquids	2%	Surface Chemistry	2%
Thermodynamics	2%	General Principles and Processes of Isolation of Elements	8%
Equilibrium	5%	p- Block Elements	6%

Redox Reactions	4%	d and f Block Elements	3%
Hydrogen	9%	Coordination Compounds	3%
s-Block Element (Alkali and Alkaline earth metals)	3%	Haloalkanes and Haloarenes	2%
Some p-Block Elements	4%	Alcohols, Phenols and Ethers	2%
Organic Chemistry- Some Basic Principles and Techniques	4%	Aldehydes, Ketones and Carboxylic Acids	4%
Hydrocarbons	2%	Organic Compounds Containing Nitrogen	3%
Environmental Chemistry	3%	Biomolecules	2%
-	-	Polymers	3%
-	-	Chemistry in Everyday Life	2%

1. Some Basic Concepts of Chemistry:

This chapter comprises 8-12 marks in the NEET Chemistry section.

- Molality (m) of solutions = No. of moles of solute/ Mass of solvent (in kg)
- Dilution formula: $M_1V_1 = M_2V_2$
- Dilution formula for mixing two solutions of the same substance:

$$M_1V_1 + M_2V_2 = M_3 (V_1 + V_2)$$

- Mass percentage = (Mass of solute/ Mass of solution) x 100
- Avogadro's number = 6.022×10^{23}
- Mole fraction of A = Number of moles of A/ Number of moles of solution
- $^{\circ}\text{F} = [(9/5) \times ^{\circ}\text{C}] + 32$

2. Structure of Atom

This chapter counts for at least two marks questions in the exam.

- Wavelength of matter wave,

$$= h/ p = h/ mv = h/ \sqrt{2Em}, \text{ where, } h = \text{Planck's constant and } E = \text{kinetic energy.}$$

- Einstein's Photoelectric Equation:

$$h\nu = h\nu_0 + (\frac{1}{2}) m_e v^2$$

- Energy gap between two orbits,

$$\Delta E = RH [(1/ n_1^2) - (1/ n_2^2)], \text{ where } RH = 2.18 \times 10^{-18}, n_1 = \text{initial orbit, and } n_2 = \text{final orbit.}$$

- Heisenberg's Uncertainty Principle:

$$\Delta x \Delta p \geq (h/ 4\pi)$$

3. State of Matter

Every year, this chapter comprises 2-3 questions in the NEET exam.

- Charles's Law: At constant P and n, $(V_1/ T_1) = (V_2/ T_2)$
- Partial pressure in terms of mole fraction, $P_i = x_i \cdot P_{\text{total}}$
- Boyle's Law: At constant T and n, $P_1V_1 = P_2V_2$

4. Thermodynamics

This chapter includes 1-2 questions every year in the exam.

- First law of thermodynamics, $\Delta U = q + w$
- $C_p - C_v = R$
- Heat capacity, $c = q/ \Delta T$

- Relation between ΔH and ΔU ,

1. $\Delta H = \Delta U + p\Delta v$
2. $\Delta H = \Delta U + \Delta n_g RT$

5. Equilibrium

In the NEET exam, this chapter counts 12-16 marks questions.

- $pH = -\log[H^+]$
- $pK_w = pH + pOH$
- $\Delta G^\circ = -2.303 RT \log K$
- $K_{eq} = K_a / K_b$
- Concentration Quotient, $Q = \frac{[C]^c [D]^d}{[A]^a [B]^b}$

6. Solutions

This chapter includes a minimum of 8 marks questions in the exam.

- Osmotic pressure:

= CRT

- Elevation of the boiling point:

$\Delta T_b = K_b \times m$, where m = molality

- Relative lowering of vapour pressure:

$\frac{(P^\circ_A - P)}{P^\circ_A} = A$

- Van't Hoff Factor, $i = \frac{\text{experimental colligative properties}}{\text{calculated colligative properties}}$
- Henry's Law:

$p = K_H \cdot X$, where X = Mole fraction of gas, K_H = Henry's law constant, and p = partial pressure of gas in vapour phase.

7. Electrochemistry

From the previous records, it has been noticed that aspirants can count at least two questions from this chapter every year.

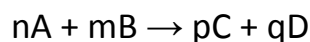
- Ohm's Law: $V = IR$
- Cell constant, = l/a
- Ionic mobility, = ionic velocity/ potential gradient

- Degree of dissociation, $= \Lambda M / \Lambda_o$
- $E^{\circ}_{\text{cell}} = E^{\circ}_{\text{cathode}} - E^{\circ}_{\text{anode}}$

8. Chemical Kinetics and Nuclear Chemistry

These chapters comprise a total of 12-16 marks of questions in the NEET exam.

- For a general chemical transformation,



$$\text{Rate} = -d[A]/n \cdot dt = -d[B]/m \cdot dt = +d[C]/p \cdot dt = +d[D]/q \cdot dt$$

- Arrhenius equation, $k = Ae^{-E_a/RT}$
- Binding Energy: $BE = \Delta m \times 931.5 \text{ MeV}$, where Δm = mass defect
- Activity, $A = A_o e^{-t}$
- Packing fraction = $[(\text{isotopic atomic mass} - \text{mass number}) / \text{mass number}] \times 10^6$

9. s-Block Elements

You can face at least eight marks questions from this chapter.

- The general electronic configuration is ns^{1-2} .
- Atomic radii increase down the group.
- Ionisation enthalpy and hydration enthalpy decreases down the group.
- Hydroxide and hydrogen are produced by reacting with water.
- Gives oxides, peroxides, and superoxides when they react with oxygen.

10. p-Block Elements

It is a concept-based chapter and counts 2-3 questions in the NEET exam.

- The general electronic configuration is $ns^{1-2} ns^2 np^{1-6}$.
- Atomic radii increase down the group.
- Basic character, reducing properties, and metallic character decrease down the group.
- F, O, and N are the best electronegative elements in the periodic table.
- Some important compounds are Diborane (B_2H_6), Borax ($Na_2B_4O_7 \cdot 10H_2O$), and Potash alum ($K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$).

11. Coordination Compound

Every year, at least two questions are involved from this unit.

- Magnetic moment, = $\sqrt{n(n+2)}$ B.M.
- The heat of hydrogenation of alkenes

1-butene > cis-2-butene > trans-2-butene

- Stability of free radical

1° alkyl < 2° alkyl < 3° alkyl

- Leaving nature in Nucleophilic Substitution reaction

$R^- < H^- < MeO^- < HO^- < CN^- < CH_3COO^- < ROSO_2^- < ArSO_3^-$

12. Alcohol, Phenol, and Ether

This chapter comprises 4-8 marks in the NEET exam.

- Structure of alcohol:

sp^3 hybridised, 106.9° bond angle, O-C bond length = 143 pm, O-H bond length = 96 pm

- Preparation of alcohol:

1. From alkenes
2. By reducing aldehydes and ketones
3. By reacting carbonyl compounds with Grignard reagent
4. By hydrolysis of alkyl halides
5. By hydrolysis of ether
6. Alcohol can prepare from 1° amine by treatment with nitrous acid
7. By alcoholic fermentation

- Chemical properties of alcohols:

1. Reaction with metals
2. Esterification reaction
3. Reaction with Phosphorus halide
4. Dehydration reaction
5. Oxidation reaction

- Structure of Phenol:

sp^2 hybridised, bond angle = 109° , and O-C bond length = 136 pm

- Chemical properties of Phenol:

1. Halogenation, Sulphonation, Nitration, Oxidation
2. Kolbe's reaction, Fries rearrangement
3. Reaction with Zinc dust, Esterification reaction, reaction with metals

- Structure of ethers:

sp^3 hybridised, 111.7° bond angle, O-C bond length = 141 pm

- Ethers can be prepared by dehydration of alcohol.

- Chemical reactions of ether:

1. Halogenation, electrophilic substitution reactions
2. Reaction with CO
3. Reaction with PCl_5

- Differentiation tests:

Reaction with neutral $FeCl_3$, Lucas reagent, and Iodoform tests.

13. Aldehydes, Ketones, and Carboxylic Acids

Around 2-3 questions are included from this chapter every year in the exam.

- Preparation of aldehydes and ketones:

1. By oxidation of alcohols
2. By dehydrogenation of alcohol
3. By ozonolysis of alkenes
4. By hydration of alkynes

- Distinguish tests for aldehydes and ketones:

Tollen's test and Fehling's test

- Preparation of carboxylic acid:

1. From primary alcohols and aldehyde
2. From alkyl benzenes and acid derivatives
3. From nitriles and amides
4. From Grignard reagents
5. From alkenes and alkynes

- Chemical properties of carboxylic acids:

1. Formation of anhydride
2. Esterification, reaction with ammonia
3. Reduction, decarboxylation, electrophilic substitution reactions

- Important named reactions:

Gattermann-Koch synthesis, Friedel craft acylation, Oppenauer oxidation, Clemmensen reduction, Wolff-Kishner reduction, Cross-aldol condensation (also known as Claisen reaction or Claisen-Schmidt condensation), Arndt-Eistert reaction

14. Amines

This chapter comprises 8-12 marks in the NEET exam.

- Preparation of amines:

1. By reduction of nitro compounds
2. By Hoffmann's method, i.e., ammonolysis of alkyl halides
3. By reduction of nitriles
4. By reduction of amides
5. Hofmann Bromamide degradation reaction

- Chemical properties of amines:

1. Alkylation, acylation, benzylation, nitration
2. Electrophilic substitution reactions
3. Reaction with aldehyde, Hinsberg reagent, and nitrous acid
4. Carbylamine reaction (only by 1° amine)
5. Azo coupling reaction

- Reactions of nitro compounds:

1. Reduction
2. Action of HNO_2
3. Nef carbonyl synthesis
4. Nucleophilic substitution reaction

15. Polymers

You will be able to face at least one question from this chapter.

- Polyethene, Polyacrylonitrile, Polystyrene, PVC, PP, Teflon, etc., are polyolefins.

1. Polyethene: Polymer of ethylene or ethene.
2. Polyacrylonitrile: Polymer of acrylonitrile.

3. Polystyrene: Polymer of styrene and also known as styrene.
4. PVC: Polymer of vinyl chloride and also known as polyvinyl chloride.
5. PP: Polymer of propylene and also known as polypropylene.
6. Teflon: Polymer of tetrafluoroethene and also known as polytetrafluoroethene.

- Condensation polymers:

Polyamides, Polyesters, Glyptal, Polymethylmethacrylate.

- Resins:

Phenol-Formaldehyde polymers, Urea-Formaldehyde resin, Melamine-Formaldehyde polymer, Natural rubber.

- Biopolymers and Biodegradable polymers:

PHBV, Nylon 2-nylon 6.

16. Hydrocarbons

In the NEET exam, this chapter includes three questions on average.

- Classification of hydrocarbons:

Acyclic (open chain or aliphatic) and Cyclic (or carbocyclic)

- Acyclic hydrocarbons are categorised into Alkanes, Alkenes, and Alkynes.
- Cyclic hydrocarbons are categorised into two categories:

Alicyclic and Aromatic.

- Alicyclic hydrocarbons are further classified into Cycloalkanes, Cycloalkenes, and Cycloalkynes.

- Important reactions:

Wurtz reaction, Frankland reaction, Reaction with Grignard reagent, Sabatier-Senderens reaction, Kolbe's electrolytic reaction, Oxymercuration-demercuration reaction, Baeyer's test, Birch reduction.

- Ortho and para directing groups and activating groups in monosubstituted benzenes:

-OH, -NH₂, -NHR, -NHCOCH₃, -OCH₃, -CH₃, -C₂H₅, etc.

- Meta directing groups and deactivating groups in monosubstituted benzenes:

-NO₂, -CN, -CHO, -COR, -COOH, -COOR, -SO₃H.

