



Padalsalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padalsalai's NEWS - Group
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1. Basic concepts of chemistry calculations.

- Define Atomic mass
- Define molecular mass
- Define One mole
- Define Avogadro Number
- Define Gram Equivalent mass
- Define Molar volume
- Define Stoichiometry
- Define Limiting Reagents
- Define oxidation Number

Types of Redox Reactions

Features of chemistry

2. Quantum Mechanical Model of atom.

Bohr atom model

Limitation of Bohr's atom model

De-Broglie Equation

Heisenberg's uncertainty principle

Schrödinger wave Equation

Features of Quantum Mechanical model of atom.

Quantum number.

Types of Quantum number:

- * Principal
- * Azimuthal
- * Magnetic
- * Spin

Aufbau principle

Pauli Exclusion principle

Hund's Rule

Periodic Law and Modern - Periodic Law

Periodicity.

Moseley's work.

Atomic Radius

Covalent Radius

Define Effective nuclear charge

Define Metallic Radius

Define Ionic Radius

Define Ionisation Energy

Define Shielding effect

Define Electron Affinity

Variation of Atomic Radius / Ionic Radius / Ionisation Enthalpy

Electronegativity / Electron Affinity / Ionisation Energy in Group and Period

Define electronegativity

Anomalous properties of second period elements

4. Hydrogen

- 1) Properties of hydrogen.
- 2) ortho- and para hydrogen.
- 3) preparation of hydrogen.
- 4) Syngas.
- 5) water-gas shift reaction.
- 6) Electrolysis of heavy water.
- 7) Preparation of Tritium.
- 8) Properties of Hydrogen.
- 9) Deuterium Exchange reactions.
- 10) Uses of Hydrogen.
- 11) "Water is an amphoteric" → Explain.
- 12) Hard & Soft water.
- 13) How to remove Temporary Hardness in water?
- 14) Uses of Heavy water.
- 15) Hydrogen Peroxide & its uses.
- 16) Hydrides.
- 17) Hydrogen Bonding.

5. Alkali and Alkaline Earth metals.

- 1) General characteristics of alkali metals.
- 2) Similarities between Lithium and Magnesium.
- 3) Uses of alkali metals.
- 4) Sodium carbonate $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ (washing soda)
- 5) Uses of Sodium carbonate.
- 6) Uses of NaCl.
- 7) Uses of sodium hydroxide.
- 8) How the alkaline and alkaline earth metals used in fireworks?
- 9) Properties of Beryllium and other elements of family.
- 10) Similarities between Beryllium and Aluminium.
- 11) Uses of Beryllium.
- 12) Uses of Magnesium.
- 13) Uses of calcium.
- 14) Uses of Strontium.
- 15) Uses of Barium & Radium.
- 16) General characteristics of alkaline Earth metals.
- 17) Preparation & uses of Quick lime.
- 18) Preparation & uses of calcium Hydroxide.
- 19) Preparation & uses of Gypsum.
- 20) Plaster of Paris.
- 21) Dead burnt Plaster.
- 22) Uses of plaster of Paris.
- 23) Biological importance of magnesium and calcium.

6. Gaseous State

- 1) Boyle's Law.
- 2) Consequence of Boyle's Law.
- 3) Charles Law.
- 4) Gay-Lussac's Law.
- 5) Avogadro's Hypothesis.
- 6) Ideal Gas Equation.
- 7) Dalton's Law of Partial Pressures.
- 8) Graham's Law of Diffusion.
- 9) Diffusion & Effusion.
- 10) Compressibility factor (z).
- 11) Vander Waals Equation.
- 12) Andrew's Isotherm.
- 13) Derivation of critical constants from Vander Waals constant.
- 14) Liquefaction of gases.
- 15) Critical Temperature.

7. Thermodynamics

- 1) Define System.
- 2) Define Surroundings.
- 3) Define Boundary.
- 4) Define Isolated System, closed System and open System.
- 5) Properties of the System.
- 6) Types of Thermodynamic process.
- 7) Adiabatic process.
- 8) Isothermal process.
- 9) Isobaric process.
- 10) Isochoric process.
- 11) Cyclic process.
- 12) State function & path function.
- 13) Importance of " U " (Internal Energy).
- 14) Characteristics of Internal Energy.
- 15) Define Heat.
- 16) Define work.
- 17) work involved in expansion & compression process.
- 18) Zeroth Law of Thermodynamics.
- 19) First Law of Thermodynamics.
- 20) Other statements for 1st Law of Thermodynamics.
- 1) Enthalpy.
- 2) Relation between Enthalpy & Internal Energy.
- 3) Molar heat capacity.
- 4) Heat of combustion.
- 5) Relation between C_p and C_v for ideal gas.
- 6) calorimetry.
- 7) Applications of Bomb calorimeter.
- 8) Heat of Solution.
- 9) Hess's Law & its applications.
- 10) Latent heat.

- 31) Born - Haber's cycle
- 32) Entropy
- 33) Kelvin - Planck Statement
- 34) Clausius Statement
- 35) Entropy of fusion
- 36) Gibbs free energy
- 37) Criteria for spontaneity of a process
- 38) Gibbs free energy and net work done by the system
- 39) Third law of Thermodynamics
- 40) Effect of Temperature on spontaneity of reactions.

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