

GUJARAT TECHNOLOGICAL UNIVERSITY
4 SEMESTER – OLD PAPER – S22 TO S26 – QUESTION BANK
Subject Name & Code: Fundamentals of Wastewater Quality - 3141309

Chapter 1: Basic Concept of Equilibrium Chemistry

Repeated Questions:

1. Le Chatelier's Principle:

- Q. State and explain Le Chatelier's principle in brief / State Le Chatelier's principle. (SUMMER 2022, 3 Marks; WINTER 2022, 4 Marks; WINTER 2023, 3 Marks; WINTER 2025, 4 Marks)

2. Common Ion Effect:

- Q. Explain phenomena of Common Ion effect with suitable examples / How Common Ion effect important in wastewater treatment? (SUMMER 2022, 4 Marks; SUMMER 2023, 4 Marks; SUMMER 2024, 7 Marks; SUMMER 2026, 7 Marks)

3. Complex Ions:

- Q. Write a short note on "complex ions" / What do you understand by complex ions? Explain with example how different equilibrium constants are there for a complex ion. (WINTER 2022, 3 Marks; WINTER 2024, 4 Marks)

4. Solubility Product:

- Q. Explain Solubility products with suitable examples / Write a detail note on "Solubility product." (SUMMER 2023, 7 Marks; WINTER 2025, 7 Marks)

5. Catalysis:

- Q. Define catalysis / Define the following terms: Catalysis. (WINTER 2022, 4 Marks; WINTER 2025, 4 Marks)

Other Important Questions:

1. Acids, Buffers & Ionic Activity:

- Q. What is a Chemical buffer? (SUMMER 2023, 3 Marks)
- Q. What is activity and activity co-efficient? (WINTER 2024, 3 Marks)
- Q. Explain Ionization of Acids with examples. (SUMMER 2023, 7 Marks)
- Q. Explain briefly Amphoteric hydroxides. (SUMMER 2022, 3 Marks)

2. Chemical Equilibrium & Ion Effects:

- Q. Explain kinetic approach of Chemical Equilibrium of endothermic process when temperature is increased. (SUMMER 2023)
- Q. Explain homogeneous and heterogeneous chemical equilibrium. (SUMMER 2026, 4 Marks)
- Q. Explain phenomena of diversion Ion effect with suitable examples. (SUMMER 2025, 4 Marks - term printed as diversion Ion effect; likely Diverse Ion effect)

3. Numerical Problems – pH & Solubility Product:

- Q. Determine the equilibrium pH of a solution made by adding acetic acid to water to give a concentration of 10^{-2} M at 25 °C. (WINTER 2023, 4 Marks)
- Q. The solubility product K_{sp} for calcium sulphate in water is 2.96×10^{-4} . Determine the equilibrium Ca^{2+} concentrations in mg/L for a saturated calcium sulphate solution. (SUMMER 2024, 3 Marks)
- Q. The solubility of CaF_2 is 0.015 M at 25 °C. Calculate the Solubility Product i.e. K_{sp} for CaF_2 . (WINTER 2025, 7 Marks OR)

- **Q.** The solubility of PbBr_2 is 0.012 M at 25 °C. Calculate the Solubility Product i.e. K_{sp} for PbBr_2 . **(WINTER 2023)**
- **Q.** At what Ca^{+2} concentration in mg/L will precipitation of $\text{Ca}(\text{PO}_4)_2$ occur if solution contains 10^{-5} M PO_4^{-2} . K_{sp} of $\text{Ca}(\text{PO}_4)_2 = 1 \times 10^{-27}$. **(SUMMER 2026, 4 Marks)**

Chapter 2: Physical Chemistry

Repeated Questions:

1. Osmosis & Reverse Osmosis:

- **Q.** What is Osmosis and Reverse Osmosis? / Mention the Principle of Osmosis and Reverse Osmosis / Define osmosis. **(WINTER 2022, 4 Marks - part; SUMMER 2023, 4 Marks; WINTER 2024, 4 Marks; SUMMER 2025, 3 Marks - part)**

2. Dialysis:

- **Q.** Explain Dialysis process with sketch / Explain the principle of dialysis with neat sketch / Define dialysis. [Diagram required – refer to the original question paper] **(SUMMER 2022, 3 Marks; WINTER 2022, 4 Marks - part; SUMMER 2023, 4 Marks; SUMMER 2024, 3 Marks; SUMMER 2025, 3 Marks; WINTER 2025, 4 Marks - part)**

3. Binary Mixtures:

- **Q.** Classify the Binary Mixtures and explain each class / Define binary mixture. Explain any one of its type briefly / Write a short note on Binary Mixture / Write a short note on binary mixtures and explain its classes with examples / Explain any one class of binary mixture with neat figure. [Diagram required – refer to the original question paper] **(WINTER 2022, 7 Marks OR; SUMMER 2023, 7 Marks; SUMMER 2024, 4 Marks; WINTER 2024, 4 Marks; SUMMER 2025, 3 Marks - part; SUMMER 2025, 4 Marks; WINTER 2025, 3 Marks)**

4. Solvent Extraction:

- **Q.** Explain the principle of Solvent Extraction / Derive the Equation for the substrate remaining after nth solvent extraction / Derive the Principle of Solvent Extraction. **(WINTER 2022, 7 Marks; SUMMER 2023, 7 Marks OR; WINTER 2023, 7 Marks; WINTER 2025, 7 Marks)**

5. Adsorption:

- **Q.** Explain application of Adsorption in wastewater treatment / Define adsorption / Explain physisorption and chemisorption / State difference between them / Define Adsorption and explain in brief physisorption and chemisorption. **(WINTER 2022, 4 Marks - part; SUMMER 2023, 3 Marks; SUMMER 2024, 7 Marks; WINTER 2024, 3 Marks; WINTER 2025, 4 Marks - part; SUMMER 2026, 7 Marks)**

6. Vapor Pressure:

- **Q.** Define Vapor Pressure in close and open system / Define vapor pressure. **(WINTER 2023, 3 Marks; SUMMER 2025, 3 Marks - part)**

7. Catalysis:

- **Q.** Define Catalysis. **(WINTER 2022, 4 Marks - part; WINTER 2025, 4 Marks - part)**

Other Important Questions:

1. Solutions, Conductivity & Osmotic Pressure:

- **Q.** Describe the significance of particle size in Solution of solid in liquid. **(WINTER 2024, 3 Marks)**
- **Q.** Define Conductivity. State the Ohm's law with application in Environmental Engineering field. **(WINTER 2023, 4 Marks)**
- **Q.** Define Osmotic Pressure and its correlation with Raoult's law. **(WINTER 2023, 4 Marks OR)**

2. Membrane Technology:

- **Q.** List the membrane technologies used in and highlight application of Membrane Technology in Environmental Engineering field. **(SUMMER 2026, 4 Marks)**
- **Q.** Define the following term: i. Permeate ii. Reject iii. Flux. **(SUMMER 2026, 3 Marks)**

3. Adsorption:

- **Q.** Describe classification of Adsorption in detail. **(WINTER 2023, 7 Marks)**

Chapter 3: Basics of Organic Chemistry

Repeated Questions:

1. Functional Groups & Alcohols:

- **Q.** Give functional group and characteristics of Alcohol, Aldehydes and Ketones / Identify functional group is associated with Aldehyde, Ketone and Alcohol. Explain the nomenclature of each with example. **(SUMMER 2022, 7 Marks; SUMMER 2023, 3 Marks; WINTER 2024, 7 Marks)**
- **Q.** Classify the types of alcohols and explain each with example / Define with suitable examples: (i) Primary alcohol (ii) Secondary alcohol (iii) tertiary alcohol. **(SUMMER 2022, 7 Marks; WINTER 2023, 4 Marks; WINTER 2024, 7 Marks; SUMMER 2025, 7 Marks; SUMMER 2025, 3 Marks; WINTER 2025, 4 Marks)**

2. General Organic Chemistry – Properties, Classification & Isomerism:

- **Q.** Give the difference between organic compounds and inorganic compounds / Differentiate between organic compounds and inorganic compounds. (Give at least two points and example) **(SUMMER 2022, 4 Marks; SUMMER 2023, 3 Marks; WINTER 2023, 7 Marks - part; SUMMER 2026, 7 Marks - part)**
- **Q.** List down the properties of organic compounds / List properties of organic compounds. **(WINTER 2022, 4 Marks; SUMMER 2025, 3 Marks)**
- **Q.** Differentiate between the aliphatic and aromatic compound / Explain Aliphatic and Aromatic compounds with examples / Give difference between Aliphatic and Aromatic compounds. **(SUMMER 2022, 7 Marks; WINTER 2022, 7 Marks; WINTER 2023, 7 Marks - part; WINTER 2024, 7 Marks; SUMMER 2026, 7 Marks - part)**
- **Q.** Define Heterocyclic compound and give 3 examples of it. **(WINTER 2022, 3 Marks; WINTER 2025, 3 Marks)**
- **Q.** What is isomerism? Explain with example / Define Isomerism and explain in detail with examples. **(SUMMER 2022, 3 Marks; SUMMER 2026, 4 Marks)**

3. Hydrocarbons, Fats & Carbohydrates:

- **Q.** Enlist different chemical reactions by which saturated hydrocarbons are formed. Explain any one with example. **(SUMMER 2022, 3 Marks; SUMMER 2025, 3 Marks)**
- **Q.** Explain hydrolysis of fats and oil with chemical reactions / Explain hydrolysis and hydrogenation of fats and Oil. **(SUMMER 2024, 7 Marks; SUMMER 2025, 7 Marks)**
- **Q.** Give the difference between Fats and Wax / Give difference between Fat and Wax. **(SUMMER 2023, 3 Marks OR; WINTER 2023, 7 Marks - part)**
- **Q.** Identify the role of carbohydrates in higher animals. Explain the mechanism by which carbohydrates are converted to simple sugar with equations. **(SUMMER 2022, 7 Marks OR; WINTER 2024, 7 Marks)**

4. Detergents:

- **Q.** List types of detergents. Explain in detail biological degradation of Detergents / Explain in detail: Biological degradation of Detergents. **(WINTER 2022, 7 Marks; SUMMER 2024, 7 Marks; SUMMER 2025, 7 Marks)**

Other Important Questions:

1. Structures, Carbohydrates & Alcohols:

- **Q.** Draw the structure of Furfural, Pyrrole and Pyridine. [Diagram required – refer to the original question paper] **(SUMMER 2023, 3 Marks OR)**
- **Q.** Write a short note on Carbohydrates. **(SUMMER 2023, 4 Marks)**
- **Q.** Write a short note on Polyhydroxy Alcohols. **(SUMMER 2023, 4 Marks OR)**
- **Q.** Explain process to produce ethers. Highlight its application. **(SUMMER 2022, 4 Marks)**

2. Environmental Organics & Pesticides:

- **Q.** Explain about the Fate of Organics. **(SUMMER 2023, 7 Marks OR)**
- **Q.** List out the characteristics of pesticides. **(SUMMER 2022, 4 Marks)**
- **Q.** Explain the biological properties of Pesticides. **(WINTER 2023, 4 Marks)**
- **Q.** Expand Acronym: PCE, TCE, NAD. **(SUMMER 2026, 3 Marks)**

Chapter 4: Basic Concept of Biochemistry

Repeated Questions:

1. Enzymes:

- **Q.** Define the following terms: (i) Enzymes (ii) Cofactors (iii) Mineralization. (**WINTER 2022, 3 Marks; WINTER 2024, 3 Marks; WINTER 2025, 3 Marks**)
- **Q.** Explain role of intracellular and extracellular enzymes in biodegradation / Explain terms: Extracellular enzymes and intracellular enzymes. Identify factors that affect performance of enzyme activity in biochemical reaction. (**SUMMER 2022, 4 Marks; SUMMER 2024, 4 Marks; SUMMER 2025, 4 Marks; SUMMER 2026, 3 Marks**)

2. Biodegradation of Organic Compounds:

- **Q.** Write a short note on biodegradation of organic compounds / Explain process of biodegradation of organic compound with equations. (**SUMMER 2023, 7 Marks; WINTER 2023, 4 Marks; WINTER 2024, 7 Marks; SUMMER 2026, 7 Marks**)

3. Proteins:

- **Q.** Write a short note on “Biochemistry of proteins.” (**WINTER 2022, 4 Marks; WINTER 2025, 4 Marks**)

Other Important Questions:

1. Transformation of Organic Matter:

- **Q.** Explain transformation reactions (any two) of organic matter by bacteria. (**SUMMER 2024, 3 Marks**)

Chapter 5: Colloidal Chemistry

Repeated Questions:

1. Significance & General Properties of Colloids:

- **Q.** How colloids are significant in environment? / Explain the significance of Colloids in environment. **(SUMMER 2023, 3 Marks OR; SUMMER 2025, 3 Marks)**
- **Q.** State and explain general properties of colloids / Explain general properties of Colloids / Explain in detail the general properties of Colloids. **(SUMMER 2022, 7 Marks; WINTER 2022, 7 Marks; WINTER 2025, 7 Marks; SUMMER 2026, 7 Marks OR)**

2. Coagulation – Hardy Schulze Law:

- **Q.** State Hardy Schulze Law and its importance in wastewater treatment. **(SUMMER 2023, 4 Marks OR; WINTER 2024, 4 Marks)**

3. Brownian Movement & Tyndall Effect:

- **Q.** Explain the Brownian movement of colloidal suspension with neat sketch / Explain Brownian movement / Describe Brownian movement and Tyndall effect. [Diagram required – refer to the original question paper] **(SUMMER 2024, 4 Marks; WINTER 2024, 7 Marks; SUMMER 2025, 7 Marks)**
- **Q.** Explain the Tyndall effect in detail / Describe Brownian movement and Tyndall effect. **(WINTER 2023, 3 Marks OR; WINTER 2024, 7 Marks; SUMMER 2025, 7 Marks)**

4. Types of Colloids – Definitions:

- **Q.** Define the following terms: (i) Smoke (ii) Foams (iii) Fog. **(WINTER 2022, 3 Marks; WINTER 2025, 3 Marks)**

Other Important Questions:

1. Classification, Coagulation & Terms:

- **Q.** Classify the colloids based on nature of interaction between Dispersed Phase and Dispersion Medium. **(WINTER 2023, 4 Marks; WINTER 2023, 7 Marks OR - same paper duplicate occurrence)**
- **Q.** Discuss the mechanisms by which colloids can be coagulated. **(SUMMER 2024, 4 Marks)**
- **Q.** Explain the terms: (i) emulsion (ii) smoke (iii) smog. **(SUMMER 2022, 3 Marks)**

Chapter 6: Analysis of Wastewater Quality Parameters

Repeated Questions:

1. BOD vs COD:

- **Q.** Differentiate between BOD and COD / Give the difference between BOD and COD. (**WINTER 2022, 4 Marks; SUMMER 2023, 3 Marks; SUMMER 2024, 3 Marks; WINTER 2025, 4 Marks; SUMMER 2026**)
- **Q.** Summarize application of COD and BOD data in environmental engineering field / Highlight the sources of organic matter and also highlight the application of COD data. (**SUMMER 2025, 4 Marks; SUMMER 2026, 3 Marks**)

2. BOD Test – Dilution Water, Chemicals & Procedure:

- **Q.** How dilution water for BOD test is prepared in laboratory? / List five requirements of a satisfactory dilution water for BOD analysis / Prepare a list of chemicals used in BOD test. Explain the procedure to prepare the dilution water for BOD test. (**SUMMER 2023, 4 Marks; WINTER 2024, 3 Marks; SUMMER 2026, 7 Marks**)
- **Q.** Explain the importance of following chemicals used in BOD test: CaCl_2 , FeCl_3 , MgSO_4 , NH_4Cl , K_2HPO_4 , Na_2HPO_4 & KH_2PO_4 / What is importance of following chemicals in BOD test: (i) Seed (ii) Aeration (iii) MnSO_4 (iv) phosphate buffer (v) FeCl_3 (vi) CaCl_2 (vii) Potassium Iodide. (**SUMMER 2024, 7 Marks; SUMMER 2025, 7 Marks; SUMMER 2026, 7 Marks - part**)
- **Q.** Explain dilution method to determine BOD of wastewater. (**WINTER 2022, 7 Marks; WINTER 2025, 7 Marks**)

3. COD Determination:

- **Q.** Explain standard procedure of COD determination / Explain step by step procedure to determine the Chemical Oxygen Demand of wastewater sample. (**SUMMER 2022, 7 Marks; SUMMER 2023, 7 Marks; WINTER 2024, 7 Marks; SUMMER 2025, 7 Marks; SUMMER 2026, 7 Marks**)
- **Q.** Explain open reflux method for measurement of COD. (**WINTER 2022, 7 Marks; WINTER 2025, 7 Marks**)

4. Dissolved Oxygen (DO):

- **Q.** Explain Modified Winkler method for DO determination with chemical reactions / Explain modified Winkler method for DO determination / Describe Winkler method with reaction chemistry / Write the chemical equations involved in unmodified Winkler method for dissolved oxygen. (**SUMMER 2022, 7 Marks; WINTER 2023, 7 Marks; SUMMER 2024, 7 Marks; WINTER 2024, 7 Marks OR; SUMMER 2025, 7 Marks; SUMMER 2026, 3 Marks**)
- **Q.** State the role of following chemical in the determination of DO: (i) NaN_3 (ii) $\text{Na}_2\text{S}_2\text{O}_3$ (iii) MnSO_4 . (**WINTER 2022, 3 Marks; WINTER 2025, 3 Marks**)
- **Q.** Explain the procedure of DO fixation in wastewater sample at site. (**SUMMER 2022, 3 Marks; SUMMER 2025, 3 Marks**)
- **Q.** What is the significance of dissolved oxygen in water and wastewater? / Discuss the significance of Dissolved oxygen in water bodies and wastewater treatment. (**SUMMER 2025, 4 Marks; SUMMER 2026, 3 Marks**)

5. Acidity:

- **Q.** Explain standard procedure for determining acidity of wastewater sample / Enlist sources of different types of acidity. Explain procedure to determine acidity in laboratory. (**SUMMER 2023; SUMMER 2025, 7 Marks; SUMMER 2026, 7 Marks**)
- **Q.** Explain the significance of different types of acidity present in wastewater / Write the sources of CO_2 acidity and mineral acidity / How are methyl orange acidity and phenolphthalein acidity related to mineral acidity and total acidity? (**SUMMER 2022, 4 Marks; SUMMER 2024, 3 Marks; WINTER 2024, 3 Marks**)

6. Oil & Grease:

- **Q.** Explain the analytical procedure used to determine oil and grease content in wastewater / Explain standard procedure to determine oil and grease of wastewater sample in laboratory / Explain any one standard procedure of determination of oil and grease present in wastewater. **(WINTER 2022, 7 Marks; WINTER 2024, 7 Marks; SUMMER 2025, 7 Marks OR; WINTER 2025, 7 Marks)**
- **Q.** Enlist 4 industries that contribute oil and grease content in wastewater. **(WINTER 2022, 3 Marks; WINTER 2025, 3 Marks)**
- **Q.** Explain the “Smothering” action when wastewater contain high amount of grease. **(WINTER 2022, 4 Marks; WINTER 2025, 4 Marks)**

7. Sulfate, Nitrogen & Phosphorus:

- **Q.** Enlist the various analytical methods used to determine the sulfate concentration / Enlist standard methods for the determination of sulfates in water and waste water explain any one of them in brief. **(WINTER 2022, 3 Marks; WINTER 2024, 4 Marks; WINTER 2025, 3 Marks)**
- **Q.** State the significance of a high sulfate concentration in water supply system and in wastewater disposal. **(WINTER 2022, 4 Marks; WINTER 2025, 4 Marks)**
- **Q.** Which species of Nitrogen generally found in drinking water and wastewater. Write its possible sources and its significance / Explain about the significance of nitrogen species for aquatic life and aquatic bodies / What limit is placed on nitrogen content of drinking water and why? / Explain environmental significance of (a) sulphates and (b) Nitrogen. **(SUMMER 2022, 4 Marks; WINTER 2023, 7 Marks; SUMMER 2024, 7 Marks; WINTER 2024, 4 Marks)**
- **Q.** Summarize significance of phosphorus in water and wastewater. **(SUMMER 2024, 3 Marks; SUMMER 2025, 4 Marks)**

8. Volatile Acids:

- **Q.** Summarize significance and source of volatile acids in anaerobic treatment / What is importance of determining volatile acids in anaerobic treatment / Discuss the significance on volatile-acids in Environment / Summarize significance of volatile acids in anaerobic treatment. **(SUMMER 2022, 3 Marks; SUMMER 2024, 3 Marks; WINTER 2024, 3 Marks; SUMMER 2025, 4 Marks)**
- **Q.** Enlist the applications of volatile acid data. **(WINTER 2022, 3 Marks; WINTER 2025, 3 Marks)**
- **Q.** Define volatile acid. Enlist the methods used to determine volatile acids and explain any one in brief. **(WINTER 2022, 4 Marks; WINTER 2025, 4 Marks)**
- **Q.** Explain procedure for analysis of volatile acids in laboratory / Explain the procedure to determine Volatile acids concentration in the sludge samples. **(SUMMER 2024, 3 Marks; SUMMER 2026, 4 Marks)**

Other Important Questions:**1. COD – Theory:**

- **Q.** Explain the chemistry involved for COD determinations. **(SUMMER 2024, 7 Marks)**
- **Q.** Enlist the reagents used in determination of COD. Highlight the importance of each along with reaction chemistry. **(WINTER 2023, 7 Marks)**
- **Q.** State the limitation of COD determination process. **(WINTER 2025, 4 Marks)**
- **Q.** How can following interference eliminated during COD test? (a) Chloride (b) nitrite. **(SUMMER 2024, 4 Marks)**
- **Q.** What changes should be incorporated in the procedure to measure the COD of low concentration organic wastewater? **(SUMMER 2026, 4 Marks OR)**

2. Sample Collection & Preservation:

- **Q.** Write the method of sample preservation for following test: (i) COD test (ii) dissolved oxygen test. **(SUMMER 2024)**
- **Q.** Highlight the importance of sample collection and sample preservation procedure for the analysis of wastewater samples. **(SUMMER 2026, 4 Marks)**
- **Q.** Discuss sample preservation method for determination of Dissolved oxygen of sample by standard method. **(SUMMER 2026, 4 Marks)**

3. BOD & DO – Theory:

- **Q.** Define: Seeding. Explain the significance of seeding in BOD test. **(WINTER 2023, 7 Marks)**
- **Q.** Why is the BOD test performed for 5 days only? **(SUMMER 2025, 3 Marks)**
- **Q.** Which factors affect the solubility of oxygen in water? **(WINTER 2024, 3 Marks)**
- **Q.** Derive the Normality of Sodium Thiosulphate solution for DO test. **(WINTER 2023, 3 Marks)**
- **Q.** Write down the experimental process for the measurement of the Dissolved oxygen present in the wastewater. **(SUMMER 2023)**

4. Numerical Problems:

- **Q.** A sample of wastewater was incubated for 7 days at 20 °C and showed a BOD of 208 mg/L. (Assume $k' = 0.35/\text{day}$). Calculate its 5-day, 10-day and ultimate BOD. **(WINTER 2023)**
- **Q.** Concentration of Glucose in water sample is 35 mg/L. Estimate the oxygen equivalent concentration of this organic matter. **(WINTER 2023, 3 Marks)**
- **Q.** What is the theoretical COD of samples containing: a) 250 mg/L of Butanol and b) 250 mg/L phenol. **(SUMMER 2024, 4 Marks)**
- **Q.** Find out theoretical COD of i. 500 mg/L of Ethanol ii. 100 mg/L of Phenol. **(SUMMER 2022, 4 Marks)**
- **Q.** Calculate Theoretical COD value of (i) 3500 mg/L of glucose (ii) 3100 mg/L of acetic acid. **(WINTER 2025, 7 Marks)**

5. Oil & Grease, Sulfate, Nitrogen & Other Parameters:

- **Q.** Explain the sources and respective environmental significance of oil and grease in receiving waters / Explain the Environmental Significance of Oil & Grease. **(WINTER 2023, 7 Marks; WINTER 2023, 3 Marks - same paper duplicate theme)**
- **Q.** List the sources of organic matter and oil and grease in wastewater. **(SUMMER 2024, 4 Marks)**
- **Q.** List the sources of sulphate and oil and grease in wastewater. **(SUMMER 2025, 4 Marks)**
- **Q.** Explain the standard procedure to examine the sulphate concentration in wastewater sample. **(SUMMER 2022, 7 Marks)**
- **Q.** What is the purpose of digestion of the sample in the gravimetric analysis for sulphate? **(WINTER 2024, 4 Marks)**
- **Q.** List and explain four precautions that must be observed to ensure an accurate gravimetric determination of sulfate concentration. **(SUMMER 2026, 7 Marks OR)**
- **Q.** Explain crown corrosion with chemical reactions. **(SUMMER 2024, 4 Marks)**
- **Q.** Discuss general sources of N_2O in the environment, highlight problems it can cause. **(SUMMER 2026, 3 Marks OR)**
- **Q.** Explain environmental significance of Solids. **(WINTER 2024, 4 Marks)**
- **Q.** Enlist the applications of Oxidation Reduction Potential (ORP). **(WINTER 2023, 3 Marks OR)**
