

GUJARAT TECHNOLOGICAL UNIVERSITY

DI -1 SEMESTER – OLD PAPER – S22 TO S25 – QUESTION BANK(English)

Subject Name & Code:

Engineering Chemistry- 4300006

Unit I - Atomic Structure, Chemical Bonding, and Solutions

Repeated Questions:

1. **Define – shell and sub shell.**
 - **Appeared in:** W21 (Q1.1, 02 marks)
2. **Differentiate between orbit and orbital.**
 - **Appeared in:** S22 (Q1a, 03 marks)
3. **Define Ionization and discuss the factors affecting Degree of Ionization.**
 - **Appeared in:** S22 (Q1b, 04 marks)
4. **Explain degree of ionization and the four factors affecting on it.**
 - **Appeared in:** S23 (Q1c OR, 07 marks), W21 (Q3a, 04 marks)
5. **Explain factors affecting on degree of ionization.**
 - **Appeared in:** S24 (Q2a, 03 marks), W22 (Q1c(ii), 05 marks), W23 (Q1c OR, 07 marks)
6. **Explain in detail formation of Ionic bond and draw structure of NaCl.**
 - **Appeared in:** S22 (Q1c, 07 marks)
7. **Define ionic bond. Explain the formation of ionic bonding in sodium chloride.**
 - **Appeared in:** W22 (Q1a, 03 marks)
8. **Define ionic bond with suitable example and write its characteristics.**
 - **Appeared in:** S24 (Q1b, 04 marks)
9. **Explain in detail formation of Covalent bond with suitable examples.**
 - **Appeared in:** S22 (Q1c OR, 07 marks)
10. **What is covalent bond? Show electron dot structure of single, double and triple covalent bonds containing compounds.**
 - **Appeared in:** S23 (Q1b, 04 marks)
11. **Define hydrogen bond. Write its types with one example of each.**

- **Appeared in:** W22 (Q1b, 04 marks), S24 (Q1a, 03 marks)
- 12. **What is hydrogen bond? Explain its types with suitable Example.**
 - **Appeared in:** W24 (Q1b, 04 marks)
- 13. **Explain importance of H bond.**
 - **Appeared in:** S24 (Q1a, 03 marks)
- 14. **Define : Reduction, Buffer solution, pH.**
 - **Appeared in:** S23 (Q1a, 03 marks)
- 15. **Define pH and write their importance.**
 - **Appeared in:** W21 (Q2b, 03 marks)
- 16. **Calculate the pH of 0.05 M HCl (hydrochloric acid) solution. ($\log 5 = 0.6990$)**
 - **Appeared in:** W22 (Q2a, 03 marks)
- 17. **Solve: Calculate the pH and pOH of 0.05 M HNO₃ solution. [$\log 5 = 0.6990$]**
 - **Appeared in:** S23 (Q2a OR, 03 marks)
- 18. **Find pH of 0.05 H₂SO₄ solutions.**
 - **Appeared in:** S24 (Q2a OR, 03 marks)
- 19. **Calculate pH of 0.001M HCl.**
 - **Appeared in:** W21 (Q1.2, 02 marks), S22 (Q2a, 03 marks)
- 20. **Find the pH of 0.0001M HCl Solution.**
 - **Appeared in:** S25 (Q2a OR, 03 marks)
- 21. **Define buffer solution and write their importance.**
 - **Appeared in:** W21 (Q2b OR, 03 marks)
- 22. **Define buffer solution; write types of it with one example of each.**
 - **Appeared in:** W22 (Q2b, 04 marks)
- 23. **Outline the buffer solution and its types with examples of each.**
 - **Appeared in:** S23 (Q1c, 07 marks)
- 24. **Define Buffer Solution. Give applications of Buffer Solution.**
 - **Appeared in:** W24 (Q2b OR, 04 marks)
- 25. **Explain Buffer Solution.**
 - **Appeared in:** S25 (Q2b, 04 marks)
- 26. **Explain Normality.**
 - **Appeared in:** S25 (Q1a, 03 marks)
- 27. **Define Molarity and Normality.**

- **Appeared in:** W22 (Q1c(i) OR, 02 marks)
- 28. **Distinguish the differences between normality and molarity by giving four points of each.**
 - **Appeared in:** S23 (Q2b, 04 marks)
- 29. **Explain Aufbau principle with examples.**
 - **Appeared in:** W21 (Q2a, 04 marks), S23 (Q2b, 04 marks)
- 30. **Identify Aufbau Rule with orbital energy.**
 - **Appeared in:** S25 (Q1b, 04 marks)
- 31. **Explain hundes rule with examples.**
 - **Appeared in:** W21 (Q2a OR, 04 marks)
- 32. **What is Metallic Bond? And draw figure FCC, BCC and HCP.**
 - **Appeared in:** S25 (Q1c, 07 marks)
- 33. **Define: Molarity, Metallic Bond, Corrosion.**
 - **Appeared in:** W24 (Q1a, 03 marks)
- 34. **Explain FCC, BCC and HCP With Structure.**
 - **Appeared in:** W23 (Q1a, 03 marks)
- 35. **(i) Draw structure of FCC, state two example of it.**
 - **Appeared in:** W22 (Q1c(i), 02 marks)

Other Important Questions:

- 36. Define calorie and kilocalorie.
 - **Appeared in:** W21 (Q1.10, 02 marks)
- 37. Write any four characteristics of Ionic Compound.
 - **Appeared in:** W21 (Q1.8, 02 marks)
- 38. Write any four properties of Insulating materials.
 - **Appeared in:** W21 (Q1.9, 02 marks)
- 39. Define (1)oxidation and reduction (2) pH and pOH.
 - **Appeared in:** S24 (Q5b OR, 04 marks)
- 40. Define (1) viscosity (2) fire point (3) flash point.
 - **Appeared in:** S24 (Q3a OR, 03 marks)
- 41. Define (1) corrosion with example. (2) Buffer solution.
 - **Appeared in:** S24 (Q5b, 04 marks)
- 42. Explain Molecular Arrangement in Solid, Liquid and Gases.
 - **Appeared in:** W23 (Q1b, 04 marks)

43. What is buffer? State the types of Buffer solution And Explain Mechanism Of Buffer Solution.

- **Appeared in:** W23 (Q1c, 07 marks)

44. Explain: Application of Buffer Solution.

- **Appeared in:** W23 (Q2a, 03 marks)

45. Explain: Arrhenius Theory of Ionization.

- **Appeared in:** W23 (Q2b, 04 marks)

46. Write a note on Electro refining.

- **Appeared in:** W24 (Q1c OR, 03 marks)

47. (1) Explain Structure of Graphite. (2) Define degree of ionization. Explain factor affecting on degree of ionization.

- **Appeared in:** W24 (Q1c, 03+05 marks)

Unit II - Concepts of Electrochemistry

Repeated Questions:

- 1. Explain the working of an electrochemical cell with neat and labeled diagram. Also explain function of salt bridge.**
 - **Appeared in:** S24 (Q1c, 07 marks), S22 (Q2c, 07 marks), W21 (Q3a OR, 04 marks), W23 (Q2b, 04 marks)
- 2. Explain construction, working of dry cell with suitable diagram.**
 - **Appeared in:** S24 (Q5c, 07 marks), W21 (Q4a OR, 04 marks), W22 (Q5c, 07 marks), W23 (Q5c, 07 marks)
- 3. Explain the working of a standard hydrogen electrode with neat and labeled diagram.**
 - **Appeared in:** S24 (Q1c OR, 07 marks), S22 (Q2c OR, 07 marks)
- 4. Write short note on Electro-typing.**
 - **Appeared in:** W23 (Q2a OR, 03 marks)
- 5. Explain electro plating.**
 - **Appeared in:** W24 (Q2a OR, 03 marks)
- 6. List Industrial application of electrolysis.**
 - **Appeared in:** S25 (Q2a, 03 marks)
- 7. State the importance of electrochemical series in electrochemistry.**
 - **Appeared in:** W22 (Q2a OR, 03 marks)
- 8. Define: Fuel cell, Acid value, Fire Point.**
 - **Appeared in:** W24 (Q5a OR, 03 marks)
- 9. Explain fuel cell.**
 - **Appeared in:** S24 (Q5a OR, 03 marks), W21 (Q1.7, 02 marks)
- 10. Write the advantages of fuel cell.**
 - **Appeared in:** W21 (Q1.7, 02 marks)
- 11. Write three advantages and three applications of fuel cell.**
 - **Appeared in:** W22 (Q5c(ii), 03 marks)
- 12. Build Diagram of Fuel Cell and give its Cell Potential.**
 - **Appeared in:** S25 (Q5a OR, 03 marks)
- 13. Differentiate between Primary cell and Secondary cell. / Distinguish between Primary cell and secondary cell.**
 - **Appeared in:** S24 (Q5a, 03 marks), W21 (Q3d, 03 marks), S23 (Q5b, 04 marks), W22 (Q5c(i), 04 marks)
- 14. List four points of differences between primary cell and secondary cell.**

- **Appeared in:** S23 (Q5b, 04 marks)
- 15. **Explain lead storage cell with labelled diagram.**
 - **Appeared in:** S23 (Q5a OR, 03 marks)
- 16. **Write the principle of battery and Explain the construction and working of Nickel-cadmium battery.**
 - **Appeared in:** W23 (Q5c OR, 07 marks)
- 17. **Explain working of solar cell with it's a type, advantages and disadvantages and applications.**
 - **Appeared in:** S24 (Q5c OR, 07 marks)
- 18. **List Application of Solar Cell. / State four uses of solar cells.**
 - **Appeared in:** S23 (Q5b OR, 04 marks), S25 (Q5a, 03 marks)
- 19. **What is Solar cell? Give merits and demerits of Solar cell.**
 - **Appeared in:** W24 (Q5c(ii), 03 marks)

Other Important Questions:

- 20. Define (1) oxidation and reduction (2) pH and pOH.
 - **Appeared in:** S24 (Q5b OR, 04 marks)
- 21. Explain the process of Oxidation and Reduction of metals with examples.
 - **Appeared in:** W23 (Q2c, 07 marks)
- 22. Construct working of Electrochemical Cell.
 - **Appeared in:** S25 (Q2c, 07 marks)
- 23. Write short note on electrochemical cell.
 - **Appeared in:** W22 (Q1c(ii) OR, 05 marks)

Unit III - Corrosion of metals and its prevention

Repeated Questions:

1. **Define – Galvanising & Tinning. / State the difference between galvanizing and Tinning.**
 - **Appeared in:** W21 (Q1.3, 02 marks), W23 (Q3a, 03 marks)
2. **Define: Corrosion.**
 - **Appeared in:** W24 (Q1a, 03 marks), W22 (Q3c(ii), 02 marks)
3. **What is corrosion? Explain all factors affecting on the rate of corrosion of metal.**
 - **Appeared in:** W21 (Q5a, 07 marks), S22 (Q2b, 04 marks), S23 (Q3b, 04 marks), S25 (Q2c, 07 marks)
4. **Explain the factors affecting on rate of corrosion.**
 - **Appeared in:** W23 (Q2c, 07 marks), W24 (Q1c OR, 07 marks)
5. **List the factors affecting rate of corrosion.**
 - **Appeared in:** W22 (Q2c(i), 03 marks)
6. **Explain Pitting Corrosion.**
 - **Appeared in:** W21 (Q2c, 04 marks)
7. **Explain the pitting corrosion in details with labeled figure.**
 - **Appeared in:** W22 (Q2c(ii), 04 marks)
8. **Explain Crevice Corrosion. / What is Crevice corrosion? Explain.**
 - **Appeared in:** W21 (Q2c OR, 04 marks), S23 (Q3a OR, 03 marks)
9. **Explain concentration cell corrosion in detail with diagram.**
 - **Appeared in:** S24 (Q2c OR, 07 marks)
10. **Explain water line corrosion with chemical reaction.**
 - **Appeared in:** W24 (Q2c(ii), 04 marks)
11. **Explain the atmospheric corrosion in details along with its mechanism. (Draw the figure of mechanism.)**
 - **Appeared in:** W22 (Q2c(i) OR, 04 marks)
12. **What is Atmospheric corrosion?**
 - **Appeared in:** S25 (Q3a, 03 marks)
13. **Explain different methods to prevent corrosion.**
 - **Appeared in:** S24 (Q2c, 07 marks)
14. **Explain the methods used for anodic and cathodic protection of metals.**
 - **Appeared in:** S23 (Q3b OR, 04 marks)

15. **What is sacrificial anodic protection? Explain.**

- **Appeared in:** S22 (Q5a OR, 03 marks)

16. **Explain Electrolytic method to reduce corrosion.**

- **Appeared in:** W23 (Q3a OR, 03 marks)

17. **Identify what is Galvanic Cell Action Corrosion?**

- **Appeared in:** S25 (Q2b, 04 marks)

18. **Write short note on galvanizing of iron metal.**

- **Appeared in:** W22 (Q2c(ii) OR, 03 marks)

19. **What is Galvanizing? Explain.**

- **Appeared in:** S22 (Q5a, 03 marks)

20. **Explain Galvanising.**

- **Appeared in:** W24 (Q2c(i), 03 marks)

21. **Explain the sheradizing process in very short.**

- **Appeared in:** W22 (Q3c(ii), 02 marks)

Other Important Questions:

22. **List different types of corrosion.**

- **Appeared in:** S23 (Q3a, 03 marks)

23. **Write various types of it (Corrosion).**

- **Appeared in:** W22 (Q3c(ii), 02 marks)

24. **Explain corrosion due to differential aeration.**

- **Appeared in:** S22 (Q2b OR, 04 marks)

Unit IV - Fuels and Combustion

Repeated Questions:

1. **Write classification of fuel.**
 - **Appeared in:** W21 (Q2d, 03 marks), S25 (Q3a OR, 03 marks)
2. **Explain the characteristics of an ideal fuel. / Show characteristics of good fuel.**
 - **Appeared in:** W23 (Q3c, 07 marks), S25 (Q3b, 04 marks)
3. **Explain the proximate analysis of coal.**
 - **Appeared in:** S24 (Q2b, 04 marks)
4. **Explain in detail proximate and ultimate analysis of coal and its significance.**
 - **Appeared in:** S22 (Q4c, 07 marks)
5. **Explain the significance of Ultimate Analysis of coal.**
 - **Appeared in:** W23 (Q3b OR, 04 marks)
6. **Classify coal and explain. / Classify coal with its properties and suitable examples.**
 - **Appeared in:** S23 (Q2c, 07 marks), W23 (Q3b, 04 marks), W22 (Q3c(i), 05 marks)
7. **Show Dulong's formulae for calculating calorific value of a fuel.**
 - **Appeared in:** S23 (Q2c, 07 marks)
8. **Write Dulong's formula for measurement of net calorific value and total calorific value.**
 - **Appeared in:** W21 (Q1.4, 02 marks)
9. **On ultimate analysis a sample of coal has following percentage composition... Calculate gross calorific Value of fuel using Delong's formula.**
 - **Appeared in:** S24 (Q2b OR, 04 marks), W22 (Q3b, 04 marks)
10. **Analysis of coal give following data... Calculate higher calorific value and lower calorific value using dulong's formula.**
 - **Appeared in:** W21 (Q4b, 03 marks)
11. **Explain measurement of heat with use of Bomb calorimeter. / Show labeled diagram of Bomb calorimeter. Also write the formula to determine calorific value of a fuel using it.**
 - **Appeared in:** W24 (Q3c OR, 07 marks), S23 (Q4b, 04 marks)
12. **Write a short note on determination of calorific value of a fuel by Bomb Calorimeter.**
 - **Appeared in:** S22 (Q3c, 07 marks)
13. **Define calorie and kilocalorie.**
 - **Appeared in:** W21 (Q1.10, 02 marks)
14. **Define: Calorific value, Polymer, Saponification Number.**
 - **Appeared in:** W24 (Q3a OR, 03 marks)

15. **Describe fractional distillation of crude petroleum oil with figure.**
- **Appeared in:** W24 (Q3b OR, 07 marks)
16. **Explain Octane number and Cetane number. / What is Octane and Cetane Numbers? For what purpose it is used?**
- **Appeared in:** S23 (Q2c OR, 07 marks), W22 (Q3a OR, 03 marks)
17. **Explain Octane number.**
- **Appeared in:** W21 (Q4b OR, 03 marks)
18. **Write properties and uses of petrol, diesel and kerosene.**
- **Appeared in:** W22 (Q3c(i), 05 marks)
19. **Write a short note on (1) CNG (2) Bio Diesel (3)Hydrogen fuel.**
- **Appeared in:** S24 (Q3c, 07 marks)
20. **What is Bio diesel? Analyze Biodiesel as a substitute for Diesel.**
- **Appeared in:** S22 (Q3a, 03 marks)
21. **Illustrate Bio diesel. / Write Short Note on Bio-Diesel.**
- **Appeared in:** S23 (Q4b OR, 04 marks), W23 (Q3c OR, 07 marks)
22. **Write properties and uses of CNG. / Write four applications of LPG and CNG each.**
- **Appeared in:** W24 (Q3b OR, 04 marks), W22 (Q3b, 04 marks)
23. **Identify advantages, Disadvantages and Application of CNG.**
- **Appeared in:** S25 (Q3c OR, 07 marks)
24. **Discuss the use of Hydrogen gas as a fuel.**
- **Appeared in:** S22 (Q3b, 04 marks)
25. **Define power alcohol. Write three advantages and three disadvantages of it. / Write short note on power alcohol.**
- **Appeared in:** W22 (Q3a, 03 marks), W21 (Q2d OR, 03 marks)

Other Important Questions:

26. **Explain Solid Fuel in sense of Coal.**
- **Appeared in:** S25 (Q3c, 07 marks)
27. **Write composition, properties and application of Natural gas.**
- **Appeared in:** S22 (Q3b OR, 04 marks)

Unit V - Lubricants

Repeated Questions:

1. **Define: Lubricant and Lubrication.**
 - **Appeared in:** S22 (Q4a, 07 marks), W23 (Q4b, 04 marks)
2. **Define: flash point, fire point and cloud point for lubricant.**
 - **Appeared in:** S24 (Q4a OR, 03 marks), W21 (Q1.5, 02 marks)
3. **Define (1) viscosity (2) fire point (3) flash point.**
 - **Appeared in:** S24 (Q3a OR, 03 marks)
4. **Define: Pour point, Cloud point, Acid value.**
 - **Appeared in:** S23 (Q4a, 03 marks)
5. **Explain Viscosity and Viscosity Index.**
 - **Appeared in:** W23 (Q4b OR, 04 marks)
6. **State the functions of lubricants. / What are functions of lubricants? / Show seven functions of lubricants.**
 - **Appeared in:** W23 (Q4b, 04 marks), S25 (Q3b OR, 04 marks), S23 (Q3c, 07 marks)
7. **Classify lubricants and explain it. / Write classification of lubricants.**
 - **Appeared in:** S24 (Q4b OR, 04 marks), S22 (Q4b, 04 marks), S25 (Q4c, 07 marks)
8. **Classify the lubricants and write two applications of each class.**
 - **Appeared in:** W22 (Q4b, 04 marks)
9. **Explain boundary layer lubrication. / Explain boundary lubrication.**
 - **Appeared in:** S24 (Q3a, 03 marks), W21 (Q3b OR, 03 marks)
10. **Explain fluid film lubrication. / Explain Fluid Film Lubrication.**
 - **Appeared in:** W21 (Q3b, 03 marks), S25 (Q5b, 04 marks)
11. **Write short note on fluid film lubrication. / Write Short Note Fluid Lubricant.**
 - **Appeared in:** W22 (Q4a, 03 marks), W23 (Q4a OR, 03 marks)
12. **Explain mechanism of fluid film lubrication with figure.**
 - **Appeared in:** S23 (Q3c OR, 07 marks)
13. **Give selection of lubricants for cutting tools and gears. / Which lubricant you will select for gears and cutting tools. / Write selection of Lubricants for cutting tools and gears.**
 - **Appeared in:** S24 (Q3b, 04 marks), W21 (Q3d OR, 03 marks), W24 (Q4b OR, 04 marks)
14. **Write four properties of each: lubricant used for gears and cutting tools.**
 - **Appeared in:** W22 (Q4b OR, 04 marks)

15. Select lubricant for gears.

- **Appeared in:** S25 (Q4a, 03 marks)

16. Analyze the selection of lubricant for cutting tools.

- **Appeared in:** S22 (Q3a OR, 03 marks)

17. Which properties lubricants should have for the steam turbine?

- **Appeared in:** S23 (Q4a OR, 03 marks)

18. Explain physical and chemical tests of lubricants and give its significance.

- **Appeared in:** S22 (Q4c OR, 07 marks)

19. Explain Biodegradable Lubricants.

- **Appeared in:** W24 (Q5b OR, 04 marks)

Other Important Questions:

20. Write a short note on (1) CNG (2) Bio Diesel (3) Hydrogen fuel.

- **Appeared in:** S24 (Q3c, 07 marks)

Unit VI - Polymers, Elastomers, and Insulating Materials

Repeated Questions:

1. **Define Monomer and Polymer. / Define: Polymer, Monomer and Polymerization.**
 - Appeared in: S24 (Q4c, 07 marks), S25 (Q4b, 04 marks), W23 (Q5a, 03 marks)
2. **Define polymer and Polymerization. Classify polymers on the basis of its molecular structure.**
 - Appeared in: S22 (Q4b, 04 marks)
3. **Define: Polymerisation. Explain any one type of Polymerisation.**
 - Appeared in: W24 (Q4c OR, 04 marks)
4. **Explain classification of polymers based on their molecular structure. / Classify polymers with one example of each class.**
 - Appeared in: S23 (Q4c OR, 07 marks), W22 (Q5b, 04 marks)
5. **Explain classification of polymers based on their thermal behavior/temperature.**
 - Appeared in: S23 (Q4c, 07 marks)
6. **Distinguish between Thermoplastic and Thermosetting polymerization. / Distinguish between thermosetting and thermoplastic polymers. / Distinguish between Thermoplastic and Thermosetting plastic. / Write difference between Thermo Setting plastic and Thermo plastic.**
 - Appeared in: S24 (Q4b, 04 marks), W21 (Q3c OR, 04 marks), W22 (Q4c(i), 04 marks), W23 (Q4c OR, 04 marks)
7. **Explain addition polymerization and Condensation polymerization with examples. / Distinguish between Addition and Condensation polymerization.**
 - Appeared in: W21 (Q4a, 04 marks), S22 (Q4e, 03 marks), W23 (Q4c, 07 marks)
8. **Explain condensation polymerization.**
 - Appeared in: S24 (Q4a, 03 marks)
9. **Explain types of Polymerization.**
 - Appeared in: S25 (Q4c OR, 07 marks)
10. **Write the name and chemical formula of monomer present in Natural rubber.**
 - Appeared in: W21 (Q1.6, 02 marks)
11. **Explain vulcanization of rubber. / Write a note on vulcanization of rubber. / Explain Vulcanisation of Rubber and State the Characteristics of rubber.**
 - Appeared in: S24 (Q4b OR, 04 marks), W21 (Q5b, 04 marks), W23 (Q4c, 07 marks)
12. **Explain Vulcanization of rubber. State its advantages.**
 - Appeared in: S22 (Q5b, 04 marks)
13. **Write short note on vulcanization of rubber.**

- **Appeared in:** W22 (Q4c(i), 04 marks)
14. **Identify what is natural Rubber? And give its properties.**
- **Appeared in:** S25 (Q4a OR, 03 marks)
15. **Write Synthesis, properties and uses of Neoprene rubber. / State the Application and characteristics of Neoprene Rubber.**
- **Appeared in:** W21 (Q5c, 07 marks), W23 (Q4c OR, 03 marks)
16. **Write structure, three properties and three applications of Buna-S-Rubber. / Give properties and uses of Buna-N Rubber.**
- **Appeared in:** W22 (Q5a, 03 marks), W24 (Q4c(ii), 03 marks)
17. **Discuss the preparation of Buna-N rubber with chemical equation and write its two properties and two uses.**
- **Appeared in:** S23 (Q5c OR, 07 marks)
18. **Write a short note on Biodegradable Polymer and write name of only two biodegradable Polymer.**
- **Appeared in:** W21 (Q3c, 04 marks)
19. **Explain properties, construction and application of (1) polyethylene (2) poly vinyl chloride (3) phenol formaldehyde (4) poly vinyl cyanide (5) Teflon.**
- **Appeared in:** S24 (Q4c OR, 07 marks)
20. **Write structure, three properties and three applications of Polyethylene.**
- **Appeared in:** W22 (Q4c(ii), 03 marks)
21. **Write structure, three properties and three applications of Poly Vinyl Chloride.**
- **Appeared in:** W22 (Q4c(ii) OR, 03 marks)
22. **Discuss the preparation of PVC with chemical equation and write its two properties and two uses.**
- **Appeared in:** S23 (Q5c, 07 marks)
23. **Select the Synthesis, Properties and uses of PVC, Teflon and Polystyrene.**
- **Appeared in:** S25 (Q5c, 07 marks)
24. **Write chemical reaction, properties and uses of Polystyrene.**
- **Appeared in:** W24 (Q4c OR, 04 marks)
25. **Write the synthesis, properties and uses of polyethylene.**
- **Appeared in:** S22 (Q4f, 04 marks)
26. **Define: Thermocole. Write three properties and three uses of it.**
- **Appeared in:** W22 (Q5b, 04 marks)
27. **Explain Properties and uses of Glass wool and Thermocole.**

- **Appeared in:** S25 (Q4b OR, 04 marks)

28. Write properties and uses of Glasswool.

- **Appeared in:** W24 (Q3b OR, 04 marks)

29. Define Insulating Material. And State the Characteristics and types of Insulating material.

- **Appeared in:** W23 (Q5b OR, 04 marks)

30. Write characteristic of Insulating materials. / Write characteristics of good insulating materials. / Give properties of Insulating Materials.

- **Appeared in:** S24 (Q4a OR, 03 marks), W22 (Q5a OR, 03 marks), W24 (Q4c(i), 03 marks)

31. Write any four properties of Insulating materials.

- **Appeared in:** W21 (Q1.9, 02 marks)

32. Discuss the properties of an ideal insulating material. Enlist various types of insulating material.

- **Appeared in:** S22 (Q5c, 04 marks)

Unit VII - Electrochemical Energy Sources

Repeated Questions:

1. **Differentiate between Primary cell and Secondary cell.**
 - Appeared in: S24 (Q5a, 03 marks), W21 (Q3d, 03 marks)
2. **Distinguish between Primary cell and secondary cell.**
 - Appeared in: S23 (Q5b, 04 marks), W22 (Q5c(i), 04 marks)
3. **List four points of differences between primary cell and secondary cell.**
 - Appeared in: S23 (Q5b, 04 marks)
4. **Explain construction, working of dry cell with suitable diagram.**
 - Appeared in: S24 (Q5c, 07 marks), W22 (Q5c, 07 marks)
5. **Explain dry cell with labeled diagram.**
 - Appeared in: S23 (Q5a, 03 marks)
6. **Write a note on construction and working of Dry cell.**
 - Appeared in: W24 (Q5c OR, 04 marks)
7. **Explain construction and working of dry cell with figure.**
 - Appeared in: W21 (Q4a OR, 04 marks)
8. **Write the principle of battery and Explain the construction and working of Nickel-cadmium battery.**
 - Appeared in: W23 (Q5c OR, 07 marks)
9. **Explain lead storage cell with labelled diagram.**
 - Appeared in: S23 (Q5a OR, 03 marks)
10. **Explain fuel cell.**
 - Appeared in: S24 (Q5a OR, 03 marks)
11. **Write the advantages of fuel cell.**
 - Appeared in: W21 (Q1.7, 02 marks)
12. **Write three advantages and three applications of fuel cell.**
 - Appeared in: W22 (Q5c(ii), 03 marks)
13. **Build Diagram of Fuel Cell and give its Cell Potential.**
 - Appeared in: S25 (Q5a OR, 03 marks)
14. **Define: Fuel cell, Acid value, Fire Point.**
 - Appeared in: W24 (Q5a OR, 03 marks)
15. **Explain working of solar cell with it's a type, advantages and disadvantages and applications.**
 - Appeared in: S24 (Q5c OR, 07 marks)
16. **List Application of Solar Cell. / State four uses of solar cells.**
 - Appeared in: S23 (Q5b OR, 04 marks), S25 (Q5a, 03 marks)
17. **What is Solar cell? Give merits and demerits of Solar cell.**
 - Appeared in: W24 (Q5c(ii), 03 marks)
18. **Explain Different types of Solar Cells.**
 - Appeared in: W23 (Q5c, 07 marks)

Other Important Questions:

19. (1) Distinguish between Primary cell and Secondary cell. (2) What is Solar cell? Give merits and demerits of Solar cell.
 - Appeared in: W24 (Q5c, 04+03 marks)
