

# QUESTION BANK

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NAME OF SCHEME : OCBC-2019  
SUBJECT: CHEMISTRY

COURSE CODE : 6803  
SEMESTER/YEAR : I AND II /FIRST

BRANCH-DIPLOMA (CIVIL,MECHANICAL, TEXTILE, ELECTRICAL)

## Unit 1

### ATOMIC STRUCTURE AND CHEMICAL BONDING

1. What is atom and molecule .
2. Discuss Rutherford's model of an atom.
3. Discuss Bohr's model of an atom.
4. What is Bohr-Berry scheme of filling the electrons in various orbits.
5. Define Hund's rule.
6. Define Aufbau principle.
7. Define Pauli's exclusion principle.
8. What are the differences among Alpha, Beta and Gamma rays.
9. What is radioactivity .
10. Explain group displacement law.
11. What is half life period of radioactive element.
12. What is the difference between nuclear fission and nuclear fusion.
13. Explain nuclear fission and nuclear fusion with reaction.
14. Discuss fundamental particles of atom—their mass, charge, location and symbol.
15. What are fundamental particles of an atom.
16. Study chemical elements (atomic no upto 30) —their symbol , electronic distribution and electronic configuration.
17. What are quantum numbers.
18. What is n+l rule .
19. What are s , p ,d ,f orbital.
20. Draw atomic structure of chemical elements (atomic no. up to 30).
21. What is chemical bond.
22. Write Lewis symbols of N, Na , Cl , O , H , NaCl , H<sub>2</sub>O , NH<sub>3</sub> , CO<sub>2</sub>.
23. What is octet rule .
24. Explain types of chemical bonds with examples .
25. Define electrovalent bond and discuss their characteristics.
26. Define covalent bond and discuss their characteristics .
27. What is coordinate bond .
28. Explain Hydrogen bond with examples.
29. Write the conditions for making Hydrogen bond.
30. Discuss the types of Hydrogen bond.
31. H<sub>2</sub>S is gas while H<sub>2</sub>O is liquid .Why?

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## Unit 2

### THEORIES OF IONISATION, ELECTROCHEMISTRY, FUEL CELL, WATER

1. What is ion and ionization.
2. Explain Arrhenius theory of ionization.
3. What are the factors affecting ionization.
4. What is the meaning of pH value.
5. Study the pH related numerical.
6. What is buffer solutions and explain its Buffer actions.
7. What is indicator.
8. What is electrolytes and non electrolytes.
9. What is electrolysis, describe mechanism of electrolysis with examples .
10. What is electrolytic cell.
11. Write the application of electrolysis.
12. What is electrochemical series.
13. What is fuel cell and write its types and applications.
14. What is solar cell and solar panel.
15. Define Faraday's laws of electrolysis.
16. Study the numerical problems on Faradays Law.
17. What is electroplating and electrorefining.
18. Write the factors affecting electroplating.
19. Write the sources of water.
20. Write the types of water.
21. Write the types of hardness of water.
22. What is temporary hardness of water and how to remove it.
23. What is permanent hardness.
24. What are the causes of hardness of water.
25. Describe methods of removal of hardness of water .
26. Discuss lime soda process for removal of hardness of water.
27. What is Zeolite.
28. Discuss Zeolite or Permutit process for removal of hardness of water.
29. Discuss ion exchange process for removal of hardness of water.
30. What is boiler feed water.
31. What is sludge and scale formation in boilers.
32. What is priming and foaming.
33. What are the causes and preventions of corrosion in boiler.
34. Explain harmful effects of hard water in boiler and how to remove it.
35. Determine the hardness of water by O Hehner's method.
36. Determine the of hardness of water by EDTA method.
37. Determine the hardness of water by soap solution method.

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## Unit 3

### Metal and Metallurgy

1. What is metal .
2. What is metallurgy.
3. What is flux .
4. What is gangue .
5. What is slag.
6. What is ore .
7. What is mineral.
8. What is calcination .
9. What is roasting.
10. Write types of furnaces involved in metallurgy process.
11. Write steps of metallurgy.
12. Discuss gravity separation method .
13. Discuss magnetic separation method.
14. Discuss froth flotation method .
15. Write reactions occurred in blast furnace.
16. What is cast iron and wrought iron.
17. Write ore of Iron (any three).
18. Write ore of Copper (any three).
19. Write ore of Aluminium (any three).
20. Write important Physical and chemical properties of Copper.
21. Write important Physical and chemical properties of Iron .
22. Write important Physical and chemical properties of Aluminium .
23. What is Electrolytic refining.
24. Write uses of Copper .
25. Write uses of Aluminium .
26. Write uses of Iron .
27. What is bessemerisation.
28. Draw the structure of blast furnace.
29. What is alloy.
30. What is the purpose of making alloys. Explain .
31. What is composition and uses of Important alloys like brass, bronze, german silver, gun metal duralumin ,solder .
32. Write uses of alloys.
33. What is bearing alloys.
34. What is Steel.
35. What is stainless steel.
36. What is the composition of steel.
37. Write uses of steel.

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38. Discuss Hall-Heroult process in extraction of Aluminium.
39. Discuss Bayer process in extraction of Aluminium.
40. Discuss Serpek's process in extraction of Aluminium.
41. Discuss Hoope's process in refining of Aluminium.
42. What is corrosion .
43. What are the types of corrosion .
44. Explain factors affecting corrosion.
45. Discuss the measures of prevention from corrosion.
46. What is rusting of Iron.
47. What is galvanisation.

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## Unit 4

### ENGINEERING MATERIALS

1. What is Glass.
2. What are types of Glass .
3. What is basic raw materials and composition of Glass.
4. What are varieties of Glass.
5. What is annealing of Glass.
6. What is cement .
7. Write the composition of Portland Cement.
8. Explain the setting and hardening of cement.
9. What is refractory material .
10. Write characteristics of good refractory.
11. What are the uses of refractory material.
12. Write the types of refractory material .
13. Write short notes on silica refractory material
14. Write short notes on silicon carbide refractory material
15. Write short notes on alumina refractory material
16. Write short note on fire clay refractory material
17. Explain Lubricants: meaning and type .
18. Discuss the theory of lubrication.
19. What are properties of a good lubricants.
20. Define flash point.
21. Define fire point .
22. Define cloud point.
23. Define emulsification number.
24. Define viscosity.
25. What is nanotechnology.
26. Write short note on nano materials: Introduction and applications.

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## Unit 5

### NONMETALLIC COMPOUNDS AND FUELS

1. What is polymer.
2. What is polymerization .
3. What are the types of polymer.
4. Write the difference between addition polymerization and condensation polymerisation
5. What is plastic.
6. Discuss classification of plastics.
7. What is compounding and moulding of plastics.
8. What are constituents of plastics.
9. Write the preparation ,properties and uses of PVC.
10. Write the preparation, properties and uses of polyethene.
11. Write the preparation, properties and uses of polystyrene.
12. Write the preparation ,properties and uses of polyamides.
13. Write the preparation ,properties and uses of polyesters.
14. Write the preparation ,properties and uses of Bakelite.
15. Write short notes on synthetic fibers– nylon, rayon, decron, and polyester.
16. Write the definition ,characteristics , classification and properties of insulators.
17. What is Glass wool.
18. What is Thermocol.
19. What is Rubber .
20. What is vulcanization of Rubber.
21. What is fuel .
22. What are the types of fuel.
23. Define gross calorific value and net calorific value of fuel.
24. How determine the calorific value of a solid fuel by bomb calorimeter .
25. Write Difference between octane number and cetane number.
26. Explain Proximate analysis of coal and its utility .
27. What is fractional distillation .
28. What are the main fraction produced from crude oil by fractional distillation.
29. What is fire extinguisher .Discuss its mechanism.
30. What are the types of fire extinguisher.
31. Write the uses of fire extinguisher.