

1. Atomic nucleus. İzotopes.
2. Rutherford and Bohr models of atomic structure.
3. Quantum numbers. Atomic orbital.
4. Electron configuration of multi-electron atoms.
5. Periodic law. The periodic table of the chemical elements.
6. Ionization energy, electron affinity, electromagnetism and atomic radius.
7. Basic types of chemical bonds. Bond energy, length and polarity.
8. Formation of a covalent bond by donor-acceptor mechanism.
9. Intramolecular and intermolecular hydrogen bond.
10. Complex compounds. Complexing agents and ligands.
11. The nature of chemical bonding in complex compounds. Instability constant.
12. The first law of thermodynamics. System concept.
13. Enthalpy of the system. Thermal effects of chemical reactions.
14. Enthalpy of formation. Hess law.
15. Chemical equilibrium. Equilibrium constant of the reaction.
16. Le Chatelier principle. Factors affecting chemical equilibrium.
17. The rate of chemical reactions.
18. Factors effecting on the reaction rate.
19. Photochemical reactions.
20. Catalytic reactions. Homogeneous catalysis
21. Solution. Solution heat.
22. Methods for expressing the concentration of the solution.
23. Electrolytic dissociation.
24. Ionic yield of water and pH value.
25. Hydrolysis. The degree of hydrolysis.
26. Oxidation-reduction reactions.
27. Daniel-Jacobi element. Standart hydrogen electrode.

Exam questions on Chemistry

28. General characteristics of S elements. Alkali metals.
29. Beryllium and magnesium. Alkaline soil elements.
30. Characteristics and application of Aluminium.
31. Characteristics , application of tin (Sn) and lead (Pb).
32. Characteristics and application of IV-VII B group metals.
33. Characteristics and application of VIII B group metals.
34. Characteristics and application of I B group metals.
35. Characteristics and application of II B group metals.
36. Characteristics, application of Carbon and its compounds.
37. Characteristics of Silicon (Si). Silicon 4 oxide (SiO_2).
38. Characteristics, application of Nitrogen and its compounds.
39. Phosphorus and its compounds.
40. Characteristics, application of Oxygen and its compounds.
41. Characteristics, application of Sulfur and its compounds.
42. VII A group elements. Characteristics and application of their compounds.
43. Chemical structural theory of organic compounds. İzomerism.
44. Hydrocarbons. Hybridization of carbonic atoms.
45. Alkanes, alkenes, alkadiens and alkynes
46. Aromatic hydrocarbons. Alicyclic compounds.
47. Halogenated derivatives of hydrocarbons.
48. Alcohols and fenols
49. Ethers, aldehydes and ketones.
50. Carbon acids. Amines.