

GIIT PROFESSIONAL COLLEGE

(Affiliated to KOLHAN UNIVERSITY, Chaibasa)

Question Bank

Course : B.Sc.IT 2nd year

Subject Code : ----

Subject : CHEMISTRY

All questions carry equal marks.

Inorganic Chemistry

- Define Covalent bond.
 - Discuss characteristic features of Covalent bond.
 - How sigma and pi bonds are formed? Explain it taking combination of various orbitals?
- Define hybridisation.
 - What are different types of hybridisation.
 - How would you determine the geometry of molecules on the basis of hybridisation?
- Write Short notes are:
 - Inert pair effect
 - Fajan's rule
 - VBT theory
- Discuss the preparation properties and uses of the following:
 - Potassium permanganate
 - Phosphorous acid
 - Phosphoric acid
 - Hydroxyl Amine
- What is the position of cobalt in the periodic table on the basis of electronic configuration?
 - How is cobalt extraction from its ore?
 - Discuss the properties and uses of cobalt.
- How is Nickel occurred?
 - Write the method of extraction and properties of Nickel.
 - Discuss on important compounds of Nickel.

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Physical Chemistry

- Explain Kohlrausch's law of Independent Ionic Migration.
 - Explain the application of Kohlrausch's law
 - Explain the relation between molecular conductance and specific conductance.
- Discuss the effect of dilution on following:**
 - Specific conductance
 - Equivalent conductance
 - Molecular conductance
- Write short notes on following:-**
 - Coagulation
 - Gold number
 - Auto catalysis
 - Order of Reaction
 - Emulsifiers
 - Tyndall effect
 - Peptization
- What are emulsions? What are its different types?
 - How to distinguish between molecular solution (true solution) and colloidal solution.
 - What are gels? How are they classified? Discuss different methods for preparation of gels.
- Discuss the different characteristics of first order and second order reaction.
 - Show that half-life period of first order reaction is independent of its initial concentration.
 - 50% of a first order reaction is completed in 16 minutes. What fraction of the reaction would occur in 32 minutes?
- Discuss integrated rate expression for zero order reaction, first order reaction, second order reaction.
 - Discuss the various factors which influence rate of reaction.
 - Discuss postulates of collision theory.
- Define second law of thermodynamics?

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- b) What is the need for second law of thermodynamics?
c) Is second law of thermodynamics applicable to only cyclic process? Discuss.
8. a) Define cyclic process.
b) What is carnot theorem?
c) Discuss in detail cornot cycle.

Organic Chemistry

1. Write short notes on following:-

- a) Cannizzaro's reaction
b) Reformatsky reaction
c) Reimer – Tiemann reaction
d) Friedel craft's reaction.
2. a) Discuss the method of preparation of Toluene.
b) What happens when Toluene reacts with:-
i) Nitric Acid and Sulphuric Acid
ii) Acetyl chloride
iii) Hot acid with KMnO_4
iv) Methyl chloride in presence of aluminum chloride
3. a) Discuss the method of preparation of Benzaldehyde and its uses.
b) What happens when Benzaldehyde reacts with:
i) HCN
ii) Phosphorus pentachloride
iii) Phenyl hydrazine
vi) Grignard reagent
4. a) Discuss the method of preparation of glucose and also mention properties of D – glucose.
b) What happen when glucose.
i) reacts with bromine water
ii) reduces with sodium borohydride

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- vi) reacts with alcohol in presence of acid
5. How fructose is converted to glucose and vice versa.
6. a) Discuss the properties of Di stereomers
b) Write the Howarth representation of fructose
7. Write short notes on:
- a) Optical activity
b) Metamerism
c) Tautomerism
d) Stereo Isomerism
e) Racemic mixture
f) Plane of Symmetry.