

B.Sc. (CBCS) Chemistry I Year I Semester Question Bank**Subject: Chemistry****UNIT-I: Inorganic Chemistry**

1. What is Diagonal Relationship. Explain it in between Li & Al.
2. Explain Diagonal Relationship Between Be & Mg.
3. Explain the structure of Diborane.
4. How Diborane is prepared.
5. Explain Lewis acid nature of BX_3 .
6. What are Carbides. How are they classified.
7. What are Silicons. How are they classified.
8. Explain the preparation of silicons.
9. What are Nitrides. How are they classified.
10. Give any two methods for the preparation and reactions of Hydrazine.
11. Give any two methods for the preparation and reactions of Hydroxylamine.
12. Write notes on Phosphazines.
13. Write notes on Solubility product and common ion effect.
14. Explain the identification and separation of VI group Cations.

UNIT- II: Organic Chemistry

1. What is inductive effect. Explain its applications.
2. What is Mesomeric effect. Explain its applications.
3. Explain hyper conjugation with any two applications.
4. What are electrophilic addition reactions.
5. Give a short note on Nucleophilic substitution reactions.
6. Explain the mechanism for Nucleophilic addition reactions.
7. Give short note on Free radical reactions.
8. Explain corey house reaction and wurtz reaction.
9. Write a short note on Markonikovs rule with example.
10. Explain Zaitsebs rule with example.
11. What are dienes. How are they classified.
12. Explain Diels-Alder reaction.
13. Explain Dehydration of alcohols with mechanism.
14. Explain conformational structures of Cyclohexane.
15. Write a short note on Bayerstrain theory.

UNIT – III: Physical Chemistry

1. What are Quantum numbers. Explain their importance.
2. Give short note on de-broglies Hypothesis.
3. Explain Heisenbergs uncertainty principle.
4. Give short note on Crompton effect and photo electric effect.
5. What are liquid Crystals. How are they classified.
6. State and Explain the Determination of surface tension.
7. State and Explain the Determination of Viscosity.
8. Explain the effect of temperature on surface tension and Viscosity.
9. Explain the applications of Liquid crystals as LCD Devices.
10. Explain Andrews isotherms of CO_2
11. State and Explain the
12. What are critical constants. How critical temperature is determined.
13. Explain the determination of critical pressure.
14. Derive vander waals equation. Explain the relationship between vander waals equation and critical constants.
15. State and Joule Thomson effect.

UNIT – IV: General Chemistry

1. Explain Fajans Rule.
2. Explain Sp , Sp^2 , Sp^3 Hybridisations.
3. What is bond order. Calculate bond order in CO and N_2 .
4. Explain the terms Accuracy and Precision.
5. Give molecular orbital structures for N_2 and O_2^{2-} .
6. Give molecular orbital structures for CO and NO .