

[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 1616 C Roll No.....

Unique Paper Code : 217401

Name of the Course : B.Sc. (Hons.) Chemistry

Name of the Paper : Inorganic Chemistry (CHHT-408)

Semester : IV

Duration : 3 Hours Maximum Marks : 75

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions.
3. **All** questions carry equal marks.

1. Explain the following :

- (a) Why Li and Mg show similar behaviour ?
- (b) Solubility of noble gases in water increases on moving down the group.
- (c) Boric Acid is weak acid in aqueous solution but behaves as strong acid in presence of poly hydroxy compounds.
- (d) CCl_4 is not hydrolysed but SiCl_4 is hydrolysed by water
- (e) Excess of KI is added during the iodometric titration of CuSO_4 Vs $\text{Na}_2\text{S}_2\text{O}_3$. (5×3)

2. (a) Draw the structure of beryllium basic acetate. Why beryllium forms more complex compounds than other members of the same group ?
- (b) Give the names of oxy acids of chlorine in various oxidation states and arrange them in order of increasing acid strength. Justify your answer.

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- (c) When heated sulphur melts to a mobile liquid, but on further heating the viscosity increases sharply and then decreases again. Explain. (3×5)
3. (a) What happens when XeF_2 , XeF_4 and XeF_6 react with water ? Give reactions.
- (b) Give the reactions of Cu with (1) Conc. HNO_3 (2) dil HNO_3 (3) 50% HNO_3
- (c) Draw and explain the structure of diborane. Why is it called electron deficient compound ? How does it react with NH_3 under different conditions ?
(4½+4½+6)
4. (a) What are Hydrides ? Give brief account of interstitial hydrides.
- (b) What are Clathrates ? Which noble gases do not form clathrates and why ?
- (c) What are Silanes ? Why Silanes are more reactive than alkanes ? Explain. (3×5)
5. (a) What are Silicones ? What are the chain stopping units used in the preparation of silicones. Give some important uses of silicones.
- (b) Give the preparation, properties and structure of Caro's acid.
- (c) What do you mean by basic properties of halogens ? Give examples. Why fluorine does not show basic property ? (3×5)
6. Write short notes on any **three** of the following :
- (a) Graphite intercalation compounds.
- (b) Allotropes of phosphorous.
- (c) Phosphazenes
- (d) Inter halogen compounds (3×5)