5. (a) Which is stronger Lewis acid BF_3 or BBr_3 and why ? **2**

(b) What are the Limitations of Pearson's HSAB principle ? **2**

(c) Describe the Contribution of Pi-bonding in Soft-Soft interaction. **2**

Section B

6. (a) Write short notes on the following : **2**

(i) Silicon resins

(ii) Silicon fluids.

(b) What are Silicone Rubbers ? How are these Vulcanized ? **2**

(c) Sketch the Conformations of the tetramer $(NPCl_2)_4$. **2**

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B. Sc. EXAMINATION, 2026

(Sixth Semester)

(Re-appear Only)

CHEMISTRY

Paper–XVIII

CH-304

Inorganic Chemistry

Time : 3 *Hours*] [*Maximum Marks :* 32

Before answering the question-paper, candidates must ensure that they have been supplied with correct and complete question-paper. No complaint, in this regard will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting *two* questions from each Section. Q. No. **1** is compulsory.

(Compulsory Question)

1. (a) What do you mean by Bio-inorganic Chemistry ? **1**

(b) What is pKn ? **1**

(c) Which disease is caused by an excess of Cu^{2+} ? **1**

(d) Define Hard Acid with an example. **1**

(e) What are Silicon fluids ? **1**

(f) Name the Energy-rich Molecule in Biological System. **1**

(g) Draw the structure of Eclipsed ferrocene. **2**

Section A

2. (a) What is a Ziegler-Natta Catalyst ? Discuss. **3**

(b) Discuss the applications of Organo-aluminium Compounds. **3**

3. (a) Explain the structure of Methyl-Lithium. **2**

(b) Calculate the E.A.N of Manganese in $[Mn(C_3H_5)\ (Co)_5$. **2**

(c) Give IUPAC name of : **2**

(i) $[Mn(Co)_5\ (C_2H_4)]^+$

(ii) $[Fe_2(Co)_4\ (C_5H_5)_2]$.

4. (a) Describe the Brønsted-Lowry concept of acids and bases. **2**

(b) Explain Symbiosis with an example. **2**

(c) 2-Methyl Pyridine is a weaker base than pyridine. Explain. **2**

7. (a) Discuss the $d\pi$-$p\pi$ bonding Model for Cyclotriphosphazenes. **2**

(b) Why does C=C bond exist but a Si=Si bond does not exist ? **2**

(c) Discuss block-co-polymers of Polysiloxanes. **2**

8. (a) What is Porphyrin ? Draw the structure of Heme. **2**

(b) Discuss and draw the Mb binding Curve at different partial pressures of O_2. **2**

(c) What is the Criteria for an essential element ? **2**

9. (a) Why is High-spin Fe(II) and Mb does not Oxidise ? **2**

(b) Discuss the role of Ca^{2+} in Biological systems. **2**

(c) Explain the Bohr effect. **2**

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