



Reg. No. :

Name :

**V Semester B.Sc. Degree (CBCSS – OBE-Regular/Supplementary/
Improvement) Examination, November 2022
(2019 Admission Onwards)
CORE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
5B08CHE/PCH : Inorganic Chemistry**

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all** questions. **Each** carries 1 mark.

1. Basicity of hydroxides of lanthanides _____ with decrease in atomic number.
2. Give one example of ambidentate ligand.
3. The number of unpaired electrons in $[\text{Mn}(\text{H}_2\text{O})_6]^{2+}$ is
4. Toxicity of lead is due to its capacity to mimic (4×1=4)

SECTION – B

Answer **any seven** questions out of 10. **Each** carries 2 marks.

5. Calculate the number of metal-metal bond in $\text{Fe}_3(\text{CO})_{12}$.
6. Give the basic difference between graphene and graphite.
7. Name two zinc containing enzymes.
8. Calculate the CFSE for a d^4 system in tetrahedral field.
9. What is meant by chelate effect ?
10. Give any two consequences of lanthanide contraction.
11. Explain why Cu^{2+} is more stable than Cu^+ in aqueous solution.
12. Calculate the EAN of Fe in $[\text{Fe}(\text{CN})_6]^{4-}$.
13. Tetrahedral complexes are generally high-spin. Why ?
14. What is Bohr effect ? (7×2=14)

P.T.O.



SECTION – C

Answer **any four** questions out of 6. **Each** carries 3 marks.

15. Explain why transition metal compounds are coloured.
16. Discuss the factors affecting the stability of complexes.
17. Discuss the structure of $[\text{Ni}(\text{CN})_4]^{2-}$ using Valence bond theory.
18. Write a note on biological nitrogen fixation.
19. Give the classification of organometallic compounds based on the nature of metal carbon bond.
20. Give the biological functions of Ca. (4×3=12)

SECTION – D

Answer **any two** questions out of 4. **Each** carries 5 marks.

21. Give the mechanism of sodium-potassium pump.
22. Discuss the preparation, properties and reactions of ferrocene.
23. Discuss the crystal field splitting in octahedral complexes.
24. Explain the separation of lanthanides by ion-exchange method. (2×5=10)