



K24U 2719

Reg. No. :

Name :

V Semester B.Sc. Degree (CBCSS – O.B.E. – Regular/Supplementary/
Improvement) Examination, November 2024
(2019 to 2022 Admissions)
CORE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
5B08CHE/PCH : Inorganic Chemistry

Time : 3 Hours

Max. Marks : 40

SECTION – A

Answer **all** questions. **Each** question carries **1** mark. (4×1=4)

1. What is the common oxidation state of actinides ?
2. What are organometallic compounds ?
3. Which macromolecule serves as the oxygen storage in muscle cells ?
4. What is the hybridization of Ni in $[\text{Ni}(\text{CN})_4]^{2-}$?

SECTION – B

Answer **any 7** questions. **Each** question carries **2** marks. (7×2=14)

5. Calculate the spin only magnetic moment of $[\text{Fe}(\text{CN})_6]^{3-}$.
6. Explain the toxicity of cadmium.
7. Explain why tetrahedral complexes are unable to exhibit geometrical isomerism.
8. Which is more basic, $\text{La}(\text{OH})_3$ or $\text{Lu}(\text{OH})_3$? Why ?
9. What is chelation ?
10. What is meant by crystal field splitting ? What is the CFSE of a high spin octahedral complex with d^5 configuration ?

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11. Draw the structure of $\text{Fe}_3(\text{CO})_{12}$.
12. Among $[\text{Fe}(\text{CN})_6]^{3-}$ and $[\text{Fe}(\text{CN})_6]^{4-}$, which has higher stability constant and why ?
13. What are MXenes ? Give an example.
14. Explain why zinc complexes are generally colourless ?

SECTION – C

Answer **any 4** questions. **Each** question carries **3** marks. (4×3=12)

15. Explain low spin and high spin complexes with suitable examples.
16. Write a short note on the occurrence of lanthanides.
17. What is lanthanide contraction ? Explain its causes and consequences.
18. Discuss the structural features and functions of myoglobin.
19. Write a short note on graphene.
20. Write a short note on EAN and its significance.

SECTION – D

Answer **any 2** questions. **Each** question carries **5** marks. (2×5=10)

21. Explain the role of hemoglobin in the respiration process.
22. Discuss the structural isomerism exhibited by co-ordination compounds with suitable examples.
23. Discuss about the general characteristics of actinides.
24. Explain how CFT describes magnetic properties and colour of co-ordination compounds.