

ANNAI VIOLET ARTS AND SCIENCE COLLEGE
DEPARTMENT OF CHEMISTRY

CONTINUOUS INTERNAL ASSESSMENT - I
Subject: INORGANIC CHEMISTRY I

Class : III B.Sc., Chemistry
Max.Marks : 50

Date : 30.08.2022-FN
Sub Code:

PART A (5 × 2 = 10 Marks)
Answer any FIVE questions

1. What are Lanthanide?
2. Give their general electronic configuration of actinides.
3. What are the uses of thorium dioxide?
4. State and explain EAN rule.
5. What are the different types of ligand? Give examples?
6. What is hybridization?
7. Define hardness of water. Mention their types.

PART B – (2 × 5 = 10 Marks)
Answer any TWO questions

8. What is lanthanide contraction? Give its consequences.
9. What are the postulates of valence bond theory?
10. Draw the crystal field splitting energy level diagram of $[\text{Co}(\text{F})_6]^{3-}$

PART C – (3 × 10 = 30 Marks)
Answer ALL questions

11. Give an account of physico chemical principles involved in the separation of lanthanides by the following methods:
(a) Ion-exchange method (b) Solvent extraction method
12. Explain the high spin and low spin complex of $[\text{Fe}(\text{H}_2\text{O}_6)]^{3+}$ & $[\text{Fe}(\text{CN})_6]^{2-}$
13. a) Explain the Werner's theory of coordination complexes.
b) Difference between VBT and CFT

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