

Sr. No. 2669

Exam Code: 103204

Subject Code: 1292

B.A./B.Sc. - 4th Sem.

(2519)

Paper: Chemistry (Inorganic Chem.-A)

Time allowed: 3 hrs.

Max. Marks: 35

Part-A**Note:** All questions are compulsory. Each question carries 1 mark.The maximum length of answer can be  $\frac{1}{3}$ <sup>rd</sup> of a page. ( $8 \times 1 = 8$ )

1. What do you understand by protonic and non-protonic solvents? Give examples.
2. Filling of 4f subshell is not regular in the lanthanides series. Explain.
3. Define co-operativity.
4. What are bulk elements? Give example.
5. Give the IUPAC names of the following compounds.
  - i)  $[\text{Cr}(\text{NH}_3)_3(\text{H}_2\text{O})_3]\text{Cl}_3$
  - ii)  $[\text{VO}(\text{acac})_2]$
6. Define oxidising and reducing agent in terms of standard reduction potential.
7. Confirm which of the following obey EAN rule
  - i)  $[\text{Cu}(\text{NH}_3)_4]\text{SO}_4$
  - ii)  $[\text{Fe}(\text{CN})_6]^{-4}$
8. Give the functions of haemoglobin.

Part-B**Note:-** Attempt any two questions from each section. Each question carries 4.5 marks. The maximum length of answer can be upto 5 pages. ( $6 \times 4.5 = 27$ )Section-I

9. Describe the bonding in  $[\text{CoF}_6]^{-3}$  and  $[\text{Co}(\text{NH}_3)_6]^{+3}$  in terms of valence bond theory.

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10. Describe the following chemical reactions in liq  $\text{SO}_2$  giving suitable examples.
- Acid base reactions
  - Precipitation reactions
  - Complex formation reactions
11. Discuss in detail stereoisomerism in co-ordination compounds.

### Section-II

12. What is Lanthanide contraction? Discuss its cause and consequences.
13. i) Define Latimer diagram. Explain the information given by it with an example.  
ii) Explain what is redox cycle?
14. i) What is Frost diagram?  
ii) Account for the oxidation state and magnetic properties of Lanthanides.

### Section-III

15. Explain the following :
- Role of alkaline earth metals in biological system.
  - Complex formation in actinides.
16. What are metalloporphyrins? Discuss the structure and functions of myoglobin.
17. compare and contrast actinides and lanthanides in detail.

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