

LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

B.Sc. DEGREE EXAMINATION – CHEMISTRY

FIRST SEMESTER – APRIL 2010

CH 1503/CH 1500 - CONCEPTS IN INORGANIC CHEMISTRY

Date & Time: 30/04/2010 / 9:00 - 12:00 Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

(10x2 = 20 marks)

1. State Hund's rule of maximum multiplicity.
2. What is meant by periodicity?
3. Why is the radius of an anion bigger than that of an atom?
4. Define the ionization potential?
5. Draw the shape of ammonia molecule.
6. Define bond order.
7. State HSAB principle.
8. Give one example each for oxidation-reduction and acid-base reaction.
9. What is interstitial alloys? Give examples.
10. Boiling point of o-chloro phenol is higher than that of p-chloro phenol. Why?

PART – B

Answer any EIGHT Questions

(8x5 = 40 marks)

11. How is the ore concentrated by froth floatation process?
12. What is ionic radius? How does it vary in a group?
13. Define electron affinity. What are the factors affecting it?
14. State and explain Fajans rule.
15. What are the factors affecting the lattice energy?
16. What is meant by hybridization of orbitals? Explain with an example.
17. What are bonding and antibonding orbitals?
18. What are the postulates of VSEPR theory? Give the shapes of XeF_2 and XeF_4 .
19. Describe the role of liq. Ammonia as a solvent in various types of reactions.
20. Discuss Usanovich concept of acids and bases.

21. Explain the Hume-Rothery rule with examples.
22. Explain Zone refining and Mond's process.

PART - C

Answer any FOUR Questions

(4x10=40 marks)

23. a) Write Schrodinger wave equation and the significance of wave function.
b) Write short notes on (i) Self reduction (ii) Electrolytic reduction.
24. Define Lattice energy. How is it determined for a solid?
25. With the help of MO diagram, explain the bond order in oxygen and nitrogen molecules.
26. a) Based on VB theory, discuss the geometry of PF_5 and SF_6 .
b) What is LCAO?
27. a) Explain the Lewis theory of acids and bases with examples.
b) What are the limitations of Lewis concepts of acids and bases?
28. a) Explain the band theory of metals with examples.
b) Write short notes on (i) Van der Waals forces (ii) clathrates.

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