

Sub Code : 0547(1048)

Exam Code : 0006

Exam : B.A./B.Sc. (General), 6th Semester

Subject : Chemistry

Paper : Paper-XXI : Inorganic Chemistry-B

Time : 3 Hours

Maximum Marks : 22

Note : Attempt five questions in all, selecting one question from each Unit. Unit-V is compulsory.

UNIT-I

1. (a) What is Polymeric backbone in silicone and Phosphazenes? 2
- (b) What are Homomorphic and Heteromorphic T1- system. Explain with examples. 2
2. (a) How is Cyclic $(\text{NPCl}_2)_3$ prepared ? Give an account of its Nucleophilic substitution reactions. 2
- (b) What are silicone oils and silicone Rubbers. Explain with one example each. 2

UNIT-II

3. (a) Define HSAB Principle. Discuss the applications and limitations of this Principle. 2
- (b) What is relationship between Electro-negativity and Hardness. Give example. 2
4. (a) What lead to hard - hard and soft - soft interactions. Give evidences in support. What are its consequences ? 2
- (b) How will you determine the relative Strength of Hard and Soft Acids. and Bases ? 2

UNIT-III

5. (a) What are Orgel Diagrams ? Draw Orgel energy level diagram for d^1 configuration in tetrahedral system. What are the limitations of these diagrams. ? 2
- (b) State and explain two selection rules for Electronic Absorption spectrum of transition metal complexes. 2
6. (a) Why do tetrahedral complexes of transition metal elements give much more intense d-d electronic spectra than in octahedral complexes ? 2

- (b) How Russell Saunders States get splitted
In octahedral fields ? Explain with diagram. 2

UNIT-IV

7. (a) What is Origin of magnetism ? How is
magnetic susceptibility measured ? 2

- (b) Calculate spin only magnetic moment for : 2

- (i) Ni^{2+}
- (ii) Cu^{2+}
- (iii) Co^{3+}
- (iv) Cr^{2+}

8. (a) Write short notes on the following : 2

(i) Diamagnetic Correction

(ii) Ferromagnetism and Antiferromagnetism

- (b) Explain spin and Orbital contribution to
magnetic moments. Give example. 2

UNIT-V

Compulsory Questions

9. (a) What is Absolute Hardness.
- (b) What is Curie's Point and Neel Temperature
- (c) Write Mulliken symbol for spectroscopic terms D and F in Tetrahedral fields.
- (d) Define soft base with one example.
- (e) Name one ion which shows Temperature independent Paramagnetism.
- (f) Give one important use of silicone Rubber

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