(i) Printed Pages: 3 Roll No. .....

(ii) Questions : 9 Sub. Code : 0 5 4 7

Exam. Code : 0 0 0 6

B.A./B.Sc. (General) 6th Semester

1059

CHEMISTRY

(Same for B.Sc. Microbial and Food Technology)

Paper–XXI : Inorganic Chemistry–B

Time Allowed : Three 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 are silicon rubbers ? How are they vulcanized ? 2

(b) Discuss dπ-pπ bonding model for cyclo-triphosphazene. 2

2. (a) Write brief notes on :—

(i) Silicon oil

(ii) Silicon resins. 2

(b) How do the π-system of cyclic $(NPCl_2)$ differ from π-system in C_6H_6 ? 2

UNIT—II

3. (a) Explain 'SYMBIOSIS' with examples. 2

(b) Justify the following reactions on the basis of HSAB principle :

(i) $LiI + CsF \rightarrow LiF + CsI$

(ii) $CuI_2 + 2CuF \rightarrow CuF_2 + 2CuI$ 2

4. (a) Define Pearson's HSAB principle. Differentiate Hard and Soft acids. 2

(b) How is electronegativity related with Hardness and Softness ? 2

UNIT—III

5. (a) Discuss briefly L-S coupling. 2

(b) Write down the selection rules for d-d transitions. 2

6. (a) Draw a combined Orgel diagram for d^1, d^4, d^6 and d^9 octahedral complexes. 2

(b) What is Vibronic coupling ? Give one example of this phenomenon. 2

UNIT—IV

7. (a) Discuss briefly the Gouy's method for measuring magnetic susceptibility. 2

(b) (i) Show that $\sqrt{us(s+1)}$ and $\sqrt{n(n+2)}$ are equivalent expressions.

(ii) What is TIP. 2

8. (a) Discuss orbital contribution to magnetic moment in complexes. 2

(b) What is magnetic susceptibility ? How does it vary with temperature ? 2

UNIT—V

(Compulsory Question)

9. (a) Write a note on Diamagnetic correction.

(b) Explain Anti-ferromagnetism.

(c) Discuss Laporte forbidden transitions.

(d) Calculate the term symbol for d^{10} configuration.

(e) AgI_2^- complex is stable but AgF_2^- is not. Explain.

(f) Draw the general repeating unit in silicones. 1×6=6