

(i) Printed Pages : 3 Roll No.

(ii) Questions : 9 Sub. Code :

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B.A./B.Sc. (General) 6th Semester
(2055)

CHEMISTRY

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

Paper – XXI : Inorganic Chemistry–B

Time Allowed : Three Hours] [Maximum Marks : 22

Note :— Attempt **five** questions in all, selecting **one** question each from Units I-IV. Unit-V is compulsory.

UNIT—I

1. (a) What are Silicon fluids or oils ? Discuss their uses.
(b) Give two methods of preparation of phosphazenes. 2,2
2. (a) What are Silicone rubbers ? How are these vulcanized ?
(b) Discuss the nature and bonding in cyclotriphosphazenes.

2,2

UNIT—II

3. (a) Explain Symbiosis with examples.
(b) How does HSAB principle explain the validity of the following reactions :



4. (a) Define Pearson's HSAB principle. Explain the applications of HSAB principle.
- (b) Is there any relationship between electronegativity and Hardness ? Explain. 2,2

UNIT—III

5. (a) Calculate term symbols and number of microstates for d^2 and d^{10} octahedral systems.
- (b) Explain L-S Coupling. 2,2
6. (a) Write down the selection rules for d-d transitions.
- (b) Draw and discuss the Orgel diagram for $[\text{Cu}(\text{H}_2\text{O})_6]^{+2}$ ion. 2,2

UNIT—IV

7. (a) Discuss Gouy's method for measuring magnetic susceptibility.
- (b) Explain the following :
- (i) TIP
- (ii) Anti-Ferromagnetism 2,2
8. (a) Discuss variation of magnetic susceptibility with temperature.
- (b) Explain quenching of Orbital angular momentum. 2,2

UNIT—V

9. (a) What are polymeric backbones in Silicones and Phosphazenes ?
- (b) Discuss Spectrochemical Series.
- (c) What do you understand by the term diamagnetic correction ?
- (d) Calculate the spin only magnetic moments for Fe^{+3} and Ni^{+2} ions. 1.5×4