

(i) Printed Pages: 3

Roll No.

(ii) Questions : 9

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Exam. Code :

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B.A./B.Sc. (General) 6th Semester
(2054)

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 each from Units I to IV. Unit V is compulsory.

UNIT—I

- (a) What are Silicon Rubbers ? How are these vulcanized ?

(b) How does the delocalization of π -system in cyclic triphosphazene differ from π -system in benzene ?

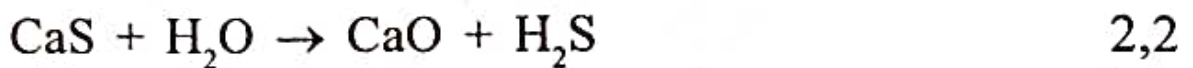
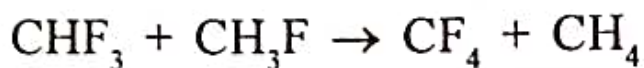
2,2
- (a) What are Silicones fluids or oils ? Discuss their uses.

(b) How is cyclic $(\text{NPCl}_2)_3$ prepared ? Discuss the structure and bonding in $(\text{NPCl}_2)_3$.

2,2

UNIT—II

3. (a) What is Symbiosis ? Discuss theoretical basis of hardness and softness.
- (b) How does HSAB principle explain the validity of the following reactions ?



4. (a) What is HSAB principle.? How does HSAB principle govern the occurrence of minerals ?
- (b) Explain the relationship between electronegativity and hardness. 2,2

UNIT—III

5. (a) Calculate Ground state terms symbol and number of microstates for d^2 and d^3 octahedral systems.
- (b) Discuss briefly L-S Coupling. 2,2
6. (a) Draw and discuss the Orgel diagram for $[\text{Cu}(\text{H}_2\text{O})_6]^{+2}$ ion.
- (b) Explain Laporte forbidden transitions. 2,2

UNIT—IV

7. (a) Give two main disadvantages of Gouy's method used for measuring the magnetic susceptibility ?
- (b) Explain the following :—
- (i) TIP
 - (ii) Diamagnetic Correction
 - (iii) Anti-Ferromagnetism.

1,3

8. (a) Discuss variations of magnetic susceptibility with temperature.
- (b) Explain Orbital contribution to magnetic moment in complexes. 2,2

UNIT—V

9. (a) Draw the general repeating unit in silicone and phosphazene.
- (b) Discuss the applications of HSAB Principle.
- (c) Calculate the spin only magnetic moments for Fe^{+2} and Ni^{+2} ions.
- (d) $[\text{Ti}(\text{H}_2\text{O})_6]^{+3}$ is purple in colour, Explain. 1.5×4