(T) Roll No. .....

ID—6389

B. Sc. EXAMINATION, 2022

(Batch 2019-2020)

(Sixth Semester)

BIOTECHNOLOGY

Code : CH-601/BT-607

Inorganic Chemistry

Time : 3 *Hours* *Maximum Marks* : 29

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all. Q. No. **1** is compulsory containing five short answer type questions covering the entire syllabus and will be of 5 marks each. Further, there will be two questions from each Section and attempt *one* question from each Section which will be of 6 marks each.

1. (a) Define π-acid ligands. Name any *two*.
(b) What are sandwiched compounds ?
(c) Explain the action of $CdCO_3$ on Na_2S solution.
(d) What is nitrogen assimilation ?
(e) What is Rochow Process ? **1×5=5**

Section A

2. (a) What is Zeise's salt ? Draw its structure and discuss its salient features. **3**
(b) Why are organolithium compounds more reactive than Grignard reagents ? Give their two methods of preparation. **3**

3. (a) Write a short note on homogeneous hydrogenation. **4**
(b) What are the factors which increases the stability of metal-alkyl organometallic compounds ? Explain. **2**

Section B

4. (a) What is Pearson's HSAB concept ? Give its applications. 3

(b) Write a short note on Usanovich concept of acid and base. 3

5. (a) Discuss the effect of solvents on the strength of acids and bases. 3

(b) Which is stronger acid in each of the following pairs ? Give reason : 3

(i) FCH_2COOH or $ClCH_2COOH$

(ii) HF or HCl

(iii) BF_3 or BBr_3.

Section C

6. (a) What is meant by nitrogen fixation ? What are the main fundamental requirements of biological nitrogen fixation. 3

(b) Explain Bohr effect. 3

7. (a) Give biological role of Mg. 3

(b) What is co-operativity in Hb ? Explain. 3

Section D

8. (a) What are silicones ? How are cross linked silicones prepared ? 3

(b) Discuss briefly the phosphazene polymers. 3

9. (a) What do you mean by ring opening polymerization of cyclosiloxanes ? 2

(b) Why do polyphosphazenes chain prefer a cis-trans confirmation to a trans-trans conformation ? 2

(c) What is homomorphic and heteromorphic π-system ? 2