

## INORGANIC CHEMISTRY - I

(Common for B.Sc., Biotech; and Industrial Microbiology)

Time : Three Hours]

[Maximum Marks : 35

Note : Attempt *five* questions. Select *two* questions each from Section A and B. Q. no. 9 of section C is compulsory.

### Section - A

- |    |  |   |
|----|--|---|
| 1. | Explain in detail Pearso's HSAB concept.   | 7 |
| 2. | How is electronegativity helpful in classifying hard and soft acid-bases concept ?                       | 7 |
| 3. | What are Essential and Trace elements ? Explain thier roles in biological system.                        | 7 |
| 4. | What are Metallic porphyrins ? Explain the roles played by Haemoglobin and Myeoglobin as oxygen carrier. | 7 |

### Section - B

- |    |   |   |
|----|---|---|
| 5. | What are Silicone polymers. How are these prepared ? Give their applications.           | 7 |
| 6. | Explain the nature of bonding in Triphosphazenes.                                       | 7 |
| 7. | What are Organometallic compounds ? Outline the preparation of Organolithium compounds. | 7 |
|    | Draw the structure of Methyl lithium tetramer.  | 7 |

8. Give the preparations and applications of Organotitanium compounds.

Section - C

(Compulsory Question)

9. Attempt all the following :

(a) Define the term Symbiosis with an example.

(b) Which of these are hard and soft acids ?

$\text{Cu}^{\oplus}$ ,  $\text{Ti}^{+4}$  and  $\text{Ag}^{\oplus}$ .

(c) What are Asymbiotic bacteria ? What is their importance ?

(d) Give two uses of Silicone polymers.

(e) What are Silicone elastomers ?

(f) What are Craft polymers ? Give an example.

(g) Give an example of Homogeneous hydrogenation.

(1×7=7)