

Inorganic Chemistry**3 SCE 1**

P. Pages : 2

Time : Three Hours

**AW - 3550**

Max. Marks : 80

- Notes :
1. Due credit will be given to neatness and adequate dimensions.
 2. Assume suitable data wherever necessary.
 3. Diagrams and chemical equations should be given wherever necessary.
 4. Discuss the reaction, mechanism wherever necessary.
 5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) Derive the Schrodinger wave equation. 6
b) State and explain de Broglie's principle. 4
c) Write the postulates of Bohr's theory. 3

OR

2. a) What are quantum numbers ? Discuss and give the distribution of electrons within the orbital. 6
b) Explain the following : 4
i) Atomic number ii) Aufbau principle
c) State and explain Heisenberg's uncertainty principle. 3
3. a) What is ionic bond ? Explain with example and properties. 6
b) Explain the following : 8
i) Covalent bond ii) Metallic bond
iii) Bond energy iv) Bond length

OR

4. a) What is meant by lattice energy ? Discuss the Born Haber cycle. 6
b) What are hydrogen bonds ? How are they classified. 4
c) What is hybridisation ? Discuss sp^3 hybridisation with example. 4
5. a) What is coordinate bond ? Discuss valence bond theory. 6
b) Write the applications of chelates. 4
c) What are the factors affecting the stability of complexes. 3

OR

6. a) Explain the Werner coordination theory for octahedral complexes. 4
- b) Explain inner and outer orbital complexes. 3
- c) Explain the terms : 6
- i) Chelate ii) Ligand
- iii) Coordination number

SECTION - B

7. a) What is meant by alloy ? Discuss the magnetic separation method. 5
- b) Explain the roasting and calcination with example. 4
- c) What is Bronze ? Write their uses. 4

OR

8. a) Write the importance of ore dressing discuss any two methods. 5
- b) Explain the following : 4
- i) Gangue ii) Slag
- c) Discuss the froth flotation process. 4
9. a) Discuss the manufacturing of glass. 6
- b) How the color imparted in glass (any four) 4
- c) What are the basic raw material of ceramics. 4

OR

10. a) What is meant by refractories ? Describe the manufacturing steps. 6
- b) What is potash glass ? Explain the properties and uses. 4
- c) Write the industrial applications of refractories. 4
11. a) Discuss the industrial manufacturing process of sulphuric acid. 6
- b) State the applications of activated carbon. 4
- c) Write the names of nitrating agent. 3

OR

12. a) Discuss the manufacturing process of nitric acid. 6
- b) Write the industrial applications of - 4
- i) Activated carbon ii) Rare gas
- c) Write the names of sulphonating agent. 3
