



XI-SCI : Chemistry  
Chemical Bonding,

DATE:

TIME: 1 hour 30  
minutes

MARKS: 25

SEAT NO:

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**Note:-**

1. All Questions are compulsory.
2. Numbers on the right indicate full marks.

**Section A**

**Q.1 Select and write the correct answer.**

**(4)**

1. The strength of the bond depends on  
A) Shape of orbitals            B) Extent of overlap  
C) Type of hybridisation    D) Bond length
2. In forming compound AB, an electron is transferred from A to B then .....  
A) A is divalent                      B) B is oxidized  
C) A and B are covalently bonded    D) The compound AB is electrovalent
3. The molecular orbitals formed as a result of LCAO method obeys  
A) Pauli's exclusion principle            B) Aufbau principle  
C) Hund's rule of maximum multiplicity    D) All of three
4. In O<sub>2</sub> molecule, the empty molecular orbital is .....  
A)  $\sigma 2p$             B)  $\sigma 2s$   
C)  $\sigma 2s_z$             D)  $\sigma 2P_z$

**Q.2 Answer the following.**

**(3)**

1. Define Covalent bond.
2. Why is H<sub>2</sub> stable even though it never satisfies the octet rule?
3. Write the electronic configuration of N<sub>2</sub> on the basis of MOT.

**Section B**

**Attempt any Four**

- Q.3 Covalent bond is directional in nature. Justify. **(2)**
- Q.4 Give reasons for Sigma ( $\sigma$ ) bond is stronger than Pi ( $\pi$ ) bond. **(2)**
- Q.5 Explain the formation of Cl<sub>2</sub> molecule. **(2)**
- Q.6 Explain in brief about quantum mechanics. **(2)**
- Q.7 Display electron distribution around the oxygen atom in water molecule and state shape of the molecule, also write H-O-H bond angle. **(2)**
- Q.8 Draw Lewis dot diagrams for Hydrogen (H<sub>2</sub>). **(2)**

**Section C**

**Attempt any Two**

- Q.9 Explain why  $\text{Be}_2$  molecule is not formed with the help of MOT. (3)
- Q.10 What are the interacting forces present during formation of a molecule of a compound? (3)
- Q.11 Find the formal charge on  $\text{CO}_2$  (3)

**Section D**  
**Attempt any One**

- Q.12 What are the causes of the formation of a chemical bond? Explain. (4)
- Q.13 Explain the formation of  $\text{BeF}_2$  by the process of hybridisation. (4)