

NAME:		ROLL NO:		TIME:	50: MIN
SUB:	Chemistry	Date:		CLASS:	1 st Year
SYLLABUS	Chp. 3 (Chemical Bonding)	T. MARKS	30	OBT. M	

Q. 1 Choose the Correct Answer. Cutting, Erasing, Double Selection is Strictly Prohibited. (1x6=6)

- The shape of ammonia (NH₃) molecule according to VSEPR theory is:**
 (A) Linear (B) Tetrahedral (C) Trigonal pyramidal (D) Bent
- The numbers of σ and π bonds in the N₂ molecule are:**
 (A) One σ and one π bonds (B) One σ and two π bonds
 (C) Three σ bonds only (D) Two σ and one π
- Which of the following molecules has zero dipole moment?**
 (A) NH₃ (B) CHCl₃ (C) H₂O (D) BF₃
- Which of the following species contains a dative bond?**
 (A) CH₄ (B) NaCl (C) NH₄ (D) O₂
- Which of the following molecules shows hydrogen bonding?**
 (A) CH₄ (B) NH₃ (C) CO₂ (D) CF₄
- Which type of hybridization of C occurs in CO₂?**
 (A) sp³ (B) sp² (C) sp (D) dsp²

PART-I

Q. 2 Write Short Answers of the Following Questions (2x8=16)

- Explain the difference between the formation of σ and π bonds.
- What are necessary conditions for the hydrogen bond to form.
- Why does bond polarity lead to the development of dipole moments?
- State the shape and bond angle of BF₃ using VSEPR theory.
- Draw the orbital structures of the CO₂ molecule in terms of VBT.
- Write the hybridization of carbon in ethyne (C₂H₂).
- Calculate the bond order of O₂ using molecule orbital theory.
- SO₂ is a polar molecule but SO₃ not. Justify.

PART-II

Write Answers of the Following Questions in Detail.

Q. 3 (a) Draw the molecular orbital diagrams of the following molecules. Calculate their bond orders?

(i) N₂ (ii) O₂

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(b) What are the postulates of VSEPR model? Discuss the structures of the following species with reference to this theory.

(i) H₃O⁺

(ii) PCl₅

(iii) SO₂

(iv) SF₆

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1ST YEAR REVISION & TEST SESSION



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Answer Key

1	C	2	B	3	D	4	C
5	B	6	C				