



# Arjuna 2.0 JEE 2026

T.F.T. - 08

## Chemical Bonding

By ATS Sir

- The maximum no of atoms in a plane for the compound formed by reaction of  $\text{SbF}_5$  with  $\text{SO}_2$  is:  
(A) 8 (B) 6  
(C) 7 (D) 9
- $\text{SbF}_5$  reacts with  $\text{XeF}_4$  to form an adduct. The shapes of cation and anion in the adduct are respectively.  
(A) Square planar, trigonal bipyramidal  
(B) T-shaped, octahedral  
(C) Square pyramidal, octahedral  
(D) Square planar, octahedral
- $\text{MF}$  ( $\text{M}^+$  = alkali metal cation) +  $\text{XeF}_4 \longrightarrow \text{'A'}$ .  
The state of hybridisation of the central atom in 'A' and shape of the species are respectively.  
(A)  $\text{sp}^3\text{d}$ , TBP  
(B)  $\text{sp}^3\text{d}^3$ , distorted Octahedral  
(C)  $\text{sp}^3\text{d}^3$ , Pentagonal Planar  
(D) No compound formed at all
- $\text{IF}_7 + \text{BF}_3 \rightarrow [\text{X}]$ . What is the shape of cationic and anionic part in ionic compound [X] respectively?  
(A) Trigonal bipyramidal and Octahedral  
(B) Trigonal bipyramidal & Tetrahedral  
(C) Octahedral & Tetrahedral  
(D) Pentagonal bipyramidal & Tetrahedral
- How many maximum number of atoms are present in single plane of  $\text{Al}(\text{CH}_3)_3$  molecule.  
(A) 7 (B) 4  
(C) 10 (D) 6
- Which of the following molecule is planar?  
(A)  $\text{F}_2\text{C} = \text{C} = \text{C} = \text{C} = \text{CF}_2$   
(B)  $\text{H}_2\text{C} = \text{C} = \text{CH}_2$   
(C)  $\text{C}_2\text{H}_2$   
(D) All of these
- Amongst  $\text{NO}_3^-$ ,  $\text{AsO}_3^{3-}$ ,  $\text{CO}_3^{2-}$ ,  $\text{ClO}_3^-$ ,  $\text{SO}_3^{2-}$  and  $\text{BO}_3^{3-}$ , the non-planar species are  
(A)  $\text{CO}_3^{2-}$ ,  $\text{SO}_3^{2-}$ ,  $\text{BO}_3^{3-}$   
(B)  $\text{AsO}_3^{3-}$ ,  $\text{ClO}_3^-$ ,  $\text{SO}_3^{2-}$   
(C)  $\text{NO}_3^-$ ,  $\text{CO}_3^{2-}$ ,  $\text{BO}_3^{3-}$   
(D)  $\text{SO}_3^{2-}$ ,  $\text{NO}_3^-$ ,  $\text{BO}_3^{3-}$
- The nodal plane in the  $\pi$ -bond of ethene is located in  
(A) the molecular plane  
(B) a plane parallel to the molecular plane  
(C) a plane perpendicular to the molecular plane which bisects the carbon-carbon  $\sigma$  bond at right angle.  
(D) a plane perpendicular to the molecular plane which contains the carbon-carbon bond.
- The molecule which is planar.  
(A)  $\text{SF}_4$  (B)  $\text{BrF}_5$   
(C)  $\text{ICl}_4^-$  (D)  $\text{NH}_4^+$
- Which of the following statements is/are correct for  $\text{H}_2\text{C} = \text{SF}_4$ ?  
(I) Double bond lies in equatorial position.  
(II) It is a non-planar and polar molecule.  
(III) Maximum number of atoms in a plane is 6.  
(A) I, II (B) II, III  
(C) I, III (D) I, II, III
- The hybridization of all carbon atoms in benzene is  
(A)  $\text{sp}^2$  (B)  $\text{sp}^3$   
(C)  $\text{sp}^2$  and  $\text{sp}^3$  (D)  $\text{sp}^2$  and  $\text{sp}$
- The ratio of  $\sigma$  bond and  $\pi$  bond in naphthalene is \_\_\_\_\_.  
(A) 11 : 5 (B) 2 : 1  
(C) 19 : 5 (D) 10 : 4
- The strongest p bond is present in which of the following species?  
(A)  $\text{HC} \equiv \text{CH}$  (B)  $\text{H}-\text{C} \equiv \text{P}$   
(C)  $\text{SO}_4^{2-}$  (D)  $\text{H}_2\text{C} = \text{CH}_2$
- Which of the following pairs is iso-structural?  
(A)  $\text{BO}_3^{3-}$  and  $\text{SO}_3^{2-}$  (B)  $\text{NO}_2^+$  and  $\text{CO}_2$   
(C)  $\text{HNC}$  and  $\text{SnCl}_2$  (D)  $\text{SnCl}_3^-$  and  $\text{SO}_3$
- Which of the following statements is not correct?  
(A) ( $s + p_y$ ) produces  $\text{sp}$  hybrid orbitals which are lying in the  $yz$  plane.  
(B) ( $s + p_y$ ) produces  $\text{sp}$  hybrid orbitals which are lying in the  $xz$  plane.  
(C) ( $s + p_x + p_z$ ) produces  $\text{sp}^2$  hybrid orbitals which are lying in the  $xz$  plane.  
(D) ( $s + p_y$ ) produces  $\text{sp}$  hybrid orbitals which are lying along the  $y$  axis.

## Answer Key

1. (C)
2. (B)
3. (C)
4. (C)
5. (A)
6. (C)
7. (B)
8. (A)
9. (C)
10. (D)
11. (A)
12. (C)
13. (A)
14. (B)
15. (B)

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