

Chemical Bonding

Assignment-3

Q1. Arrange the following in the increasing order of bond angle



Q2. The shape and geometry of $[\text{XeF}_3]^+$ respectively is

- a) TBP and T-shape b) T-shape and TBP
c) TBP and see- saw d) see-saw and TBP

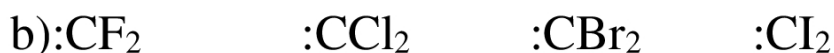
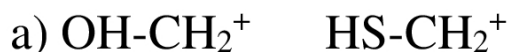
Q3. Place the following molecules in the increasing order of P-F bond length.



Q4. What will be the basicity of the acid formed by the hydrolysis of AsX_3 and P_2X_4 ?

- a) 3 and 2 b) 2 and 3
c) 3 and 4 d) 2 and 4

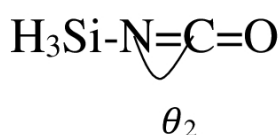
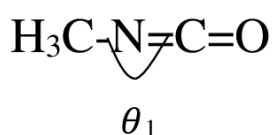
Q5. Which one of the following is more stable?



Q6. The number of vertices, faces and edges in the pentagonal bipyramidal are

- a) 7, 15, 10 b) 7, 10, 15
c) 7, 14, 10 d) 5, 10, 15

Q7. Which angle θ_1 or θ_2 is greater in magnitude?



Q8. Among SF_4 , BF_4^- , XeF_4 and ICl_4^- the number of species having two lone pairs of electrons on the central atom according to VSEPR theory is:

[NET June 2011]

- a) 2 b) 3 c) 4 d) 0

Q9. In the molecules H_2O , NH_3 and CH_4

[NET June 2011]

- a) The bond angles are same
b) The bond distances are same
c) The hybridizations are same
d) The shapes are same

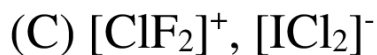
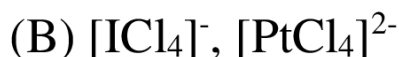
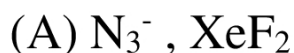
Q10. According to VSEPR theory, the molecule/ion having ideal tetrahedral shape is

[NET June 2011]

- a) SF_4 b) SO_4^{2-} c) S_2Cl_2 d) SO_2Cl_2

Q11. Among the following pairs, those in which both species have similar structures are

[NET Dec 2011]



a) A and B only

b) A and C only

c) A, B and C only

d) B, C and D only

Q12. Match list I (compounds) with list II (structures) and select the correct answer using the codes given below. [NET Dec 2011]

List I

List II



I) square planar



II) tetrahedral



III) distorted tetrahedral

a) (A-II) (B-III) (C-I)

b) (A-III) (B-I) (C-II)

c) (A-II) (B-I) (C-III)

d) (A-I) (B-II) (C-III)

Q13. The total number of lone pairs of electrons in I_3^- is [NET June 2012]

a) zero

b) Three

c) Six

d) Nine

Q14. Which ones among CO_3^{2-} , SO_3 , XeO_3 and NO_3^- have planar structure? [NET Dec 2012]

- | | |
|--|---|
| a) CO_3^{2-} , SO_3 and XeO_3 | b) SO_3 , XeO_3 and NO_3^- |
| c) CO_3^{2-} , XeO_3 and NO_3^- | d) CO_3^{2-} , SO_3 and NO_3^- |

Q15. The number of lone pairs are identical in the pairs [NET June 2013]

- | | |
|--|--------------------------------------|
| a) XeF_4 , ClF_3 | b) XeO_4 , ICl_4^- |
| c) XeO_2F_2 , ICl_4^- | d) XeO_4 , ClF_3 |

Q16. According to VSEPR theory, the geometry (with lone pair) around the central iodine in I_3^+ and I_3^- ions respectively are [NET Dec 2013]

- tetrahedral and tetrahedral
- trigonal bipyramidal and trigonal bipyramidal
- tetrahedral and trigonal bipyramidal
- tetrahedral and octahedral

Q17. The geometries of $[\text{Br}_3]^+$ and $[\text{I}_5]^+$ respectively are [NET June 2015]

- trigonal and tetrahedral
- tetrahedral and trigonal bipyramidal
- tetrahedral and tetrahedral
- linear and trigonal pyramidal

Q18. The number of lone pair(s) of electrons on the central atom in $[\text{BrF}_4]^-$, XeF_6 and $[\text{SbCl}_6]^{3-}$ are respectively [NET Dec 2015]

- | | |
|---------------|---------------|
| a) 2, 0 and 1 | b) 1, 0 and 0 |
| c) 2, 1 and 1 | d) 2, 1 and 0 |

Q19. The correct shape of $[\text{TeF}_5]^-$ ion on the basis of VSEPR theory is [NET June 2016]

- | | |
|-------------------------|---------------------|
| a) Trigonal bipyramidal | b) square pyramidal |
| c) Pentagonal planar | d) See-saw |

Q20. The numbers of triangular faces in square antiprism, icosahedron and tricapped trigonal prism (capped on square faces) respectively are [NET Dec 2016]

- a) 8, 20 and 14
b) 8, 20 and 12
c) 10, 12 and 14
d) 10, 12 and 12