Arjuna 2.0 JEE 2026

T.F.T. - 05 | **Chemical Bonding** | **By ATS Sir**

1. Which of the approaching axis is not appropriate to form π-bond by two py-orbitals.
(A) y-axis (B) x-axis
(C) z-axis (D) No suitable axis

2. Which of the following elements does not form stable diatomic molecules?
(A) Iodine (B) Phosphorus
(C) Nitrogen (D) Oxygen

3. Which of the following combination will not formπ-bond?
(A) p-p overlapping (B) s-p overlapping
(C) d-d overlapping (D) d-p overlapping

4. Choose the correct order of bond strength by overlapping of atomic orbitals
(A) 1s-1s > 1s-2s > 1s-2p
(B) 2s-2s > 2s-2p > 2p-2p
(C) 2s-2p > 2s-2s > 2p-2p
(D) 1s-1s > 1s-2p > 1s-2s

5. The possible orientations in space for a d-orbital is
(A) 7 (B) 3
(C) 1 (D) 5

6. Which of the following orbital is having longest lobe.
(A) 3p (B) 3d
(C) 2p (D) 4d

7. If x-axis is the internuclear axis, π-bond is formed by overlap between:
(A) p_y and d_{xy} (B) p_x and d_{xy}
(C) p_x and $d_{x^2-y^2}$ (D) None of these

8. Which of the molecule has p – p overlapping?
(A) Cl_2 (B) HCl
(C) H_2O (D) NH_3

9. d_{z^2} orbital is combination of:
(A) d_{z^2} & d_{xz} (B) $d_{z^2-x^2}$ & $d_{z^2-y^2}$
(C) d_{z^2} & d_{xy} (D) d_{z^2} & d_{yz}

10. If internuclear axis is y then π - bond is form by -
(A) $p_x + p_x$ (B) $s + p_x$
(C) $p_y + p_y$ (D) $p_x + p_y$

11. In which of the following pair of elements the π-bond formation tendency is maximum.
(A) S and O (B) Si and O
(C) P and O (D) Cl and O

12. Two p_z orbitals from two atoms can forma σ-bond when they approach along.
(A) x-axis (B) z-axis
(C) y-axis (D) None

13. Match the overlapping of orbitals with the type of bond formed. (Consider x-axis as internuclear axis.)

Column-I		Column-II	
(P)	$2s + 2p_x$	(1)	π-bond
(Q)	$2p_y + 2p_y$	(2)	σ- bond
(R)	$d_{xy} + p_z$	(3)	δ-bond
(S)	$d_{yz} + d_{yz}$	(4)	no bond formation

	P	Q	R	S
(A)	1	2	3	4
(B)	2	1	4	3
(C)	3	1	2	4
(D)	4	3	2	1

14. If two different non-axial d-orbitals having 'xz' nodal plane form π-bond by overlapping each other, then internuclear axis will be:
(A) x (B) y
(C) z (D) They don't form π-bond

15. Assuming the bond direction to the s-axis, which of the overlapping of atomic orbitals of two atom (A) and (B) will result in bonding?
(I) s-orbital of A and p_x -orbital of B
(II) s-orbital of A and p_z orbital of B
(III) p_y -orbital of A and p_z orbital of B
(IV) s-orbital of both (A) and (B)
(A) I and IV (B) I and II
(C) III and IV (D) II and IV

Answer Key

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

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