DPP-05

Single Correct Type

1. Select the correct statement among the following:

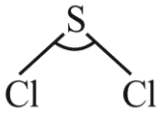
(A) Bond angle increases in CCl_2 (Triplet) due to back bonding.

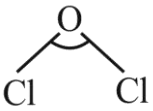
(B) $2p_\pi - 3\,d_\pi$ back bonding takes place in singlet carbene CCl_2.

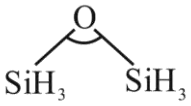
(C) singlet CH_2 has bond angle less than triplet CH_2

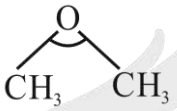
(D) All are correct

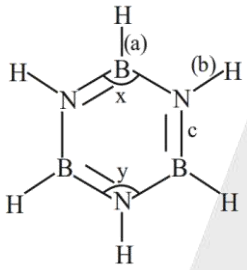
2. In which of the following molecules bond angle is greater than 120° ?

(A) 

(B) 

(C) 

(D) 

3. 

Compare bond angle x, y and bond lengths a, b, c

(A) $x > y$, c > b > a (B) $x < y$, c > a > b (C) $x = y, a > b > c$ (D) $x < y, b > a > c$

More than One Correct Tyne

4. Select the correct statement(s) from the following:

(A) Boraxine is planar due to back bonding.

(B) Borazine is planar due to back bonding.

(C) Boraxine is aromatic due to $2p\pi - 2p\pi$ back bonding.

(D) Borazine is aromatic due to $2p\pi - 2p\pi$ back bonding.

5. $(CH_3)_3\,N + HCl \longrightarrow A$
$(SiH_3)_3\,N + HCl \longrightarrow B$

select the correct statement(s) for A & B.

(A) A is $(CH_3)NH^+Cl^-$

(B) B is $(SiH_3)NH^+Cl^-$

(C) A is Lewis acid- base adduct.

(D) B is Lewis acid- base adduct.

6. Select the incorrect statement(s) regarding Back Bonding

(A) It is intermolecular acid base interaction.

(B) Both σ-dative &π-dative bond may form in back bonding.

(C) Back bonding always decreases the lewis acid character of molecule.

(D) Driving force for back bonding is always the octet completion.

7. Select the incorrect statement (s) regarding $(F_3C)_2Al-O-Al(CF_3)_2$ molecule ?

(A) $Al-O-Al$ skeleton is almost linear.

(B) Hybridisation of oxygen atom is sp^2.

(C) If $-CF_3$ is replaced by $-CH_3$ extent of Back bonding increases.

(D) There is $2p\pi 3p\pi$ back bonding possible between F&Al.

8. Which of the following statement(s) are correct

(A) SiH_3NCO is linear but GeH_3NCO is angular.

(B) $(SiH_3)_3$ N and $(GeH_3)_3$ N are planar.

(C) $C-\hat{N}-C$ angle in CH_3NCS is 142° while HNN angle in HN_3 is 112°

(D) $Si-\hat{O}-H$ bond angle in R_3SiOH is higher than $C-\hat{O}-H$ in R_3-C-OH

9. Which of the following statement(s) are correct about $\mathbf{Ph_3Si-O-siph_3}$

(A) Oxygen is sp hybridised

(B) it has $2p_n-3d_z$ back bonding.

(C) Molecule is tetrahedral with respect to S.

(D) Molecule is linear with respect to O.

Integer Tvpe

10. Number of species in which underlined atom donate(s) its lone pair in $p\pi-d\pi$ back bonding ?

OCl_2, $\underline{NCl_3}$, $\underline{N}(GeH_3)_3$, PF_3, $\underline{CO}$, $\underline{P}(SiH_3)_3$

ANSWER KEY

1.	C	**2.**	C	**3.**	B	**4.**	ABCD	**5.**	AC	**6.**	ABCD	**7.**	BCD
8.	ABCD	**9.**	ABCD	**10.**	3								