DPP-06

Only one correct

1. Select the correct statement among the following :

(A) There is double bond present between B& F in BF_3

(B) There is partial double bond character present in $AlCl_3$

(C) $AlCl_3$ prefers dimeric form rather than intemal lewis acid base ineraction in its monomeric form

(D) All are correct

2. The change in hybridization of aluminium when Al_2Cl_6 decomposes in the gas phase is :

(A) $sp^2 \rightarrow sp^3$ (B) $sp \rightarrow sp^2$ (C) $sp \rightarrow sp^3$ (D) $sp^3 \rightarrow sp^2$

3. Which of the following option is correct about structure of B_2H_6.

(A) There are two $3c-4e$ bonds and four $2c-2e$ bonds.

(B) It is the type of archno borane and it has 12 valance electrons.

(C) One B-B bond present in the structure

(D) d_{B-H} (terminal) $< d_{B-H}$ (bridging)

MCQ

4. Select the correct statements :

(A) In Al_2Cl_6 the $Al-Cl$ distance is 2.06 A (terminal) and 2.21 A (bridge)

(B) In Al_2Cl_6 bridge bonds as three centre four-electron bonds have lower bond order than the terminal two centre two electron ordinary single bond.

(C) Inorganic graphite is white and insulator

(D) Boron nitride has 2D sheet like structure.

5. In a reaction of BCl_3&BF_3 a transition state occurs through a bridging structure and final products formed are BF_2Cl&BCl_2 F through exchange of halides. Select the correct statement(s) regarding that transition state bridging structure :

(A) It consists same bridging halogen atoms

(B) It contains 8 atoms in a plane

(C) hybridisation of boron is sp^3

(D) Bridging halogen atoms are present in a plane perpendicular to the plane containing other Atoms

6. Which of the following statement is/are correct about I_2Cl_6 :

(A) Iodine atoms are sp^3 d^2 hybridised.

(B) It has a non planar geometry.

(C) It contains 8-atoms in one plane.

(D) It contains four $2c-2e^{\Theta}$ and two $3c-4e^{\Theta}$ bond.

7. Which of the following molecules do not form $3c-4e^{(\theta)}$ bond:

(A) Si_2Cl_6 (B) BCl_3 (C) I_2Cl_6 (D) $Al_2(CH_3)_6$

8. Which of the following molecule(s) is/are example of $3c-2e^{\theta}$ bond-

(A) B_2H_6 (B) $Al_2(CH_3)_6$ (C) $Be_2(OMe)_4$ (D) AlH_3

9. Which of the following molecules exist in polymeric form in solid state:

(A) BeH_2 (B) $BeCl_2$ (C) BH_3 (D) BF_3

MATRIX MATCH

10. Match the following:

	Column - I		**Column - II**
(A)	B_2H_6	(P)	$3c-2e-$ bond present
(B)	Al_2Cl_6	(Q)	$3c-4e-$ bond present
(C)	$Al_2(CH_3)_6$	(R)	behaves as lewis acid
(D)	I_2Cl_6	(S)	four $2c-2e-$ bond present
		(T)	Planar molecule

INTEGER

11. The number of species among the following in which $X-X$ bond is present (where X is central atom)

$I_2Cl_6,\ B_2(OR)_4, Al_2(Ph_6, Al_2Cl_6,\ B_2F_4,\ B_2Cl_4$

ANSWER KEY

1.	C	**2.**	D	**3.**	D	**4.**	A,B,C	**5.**	C,D	**6.**	A,C,D	**7.**	A,B,D
8.	A,B	**9.**	A,B	**10.**	A → P, R, S; B → Q, S; C → P, R; D → Q, S, T							**11.**	3