DPP-04

1. The compound MX_4 is tetrahderal. The number of $<$ XMX angles in the compound is

(A) Three (B) Four (C) Five (D) Six

2. What is hybridisation of central atom of anionic part of PBr_5 in crystalline state.

(A) sp^2 (B) sp^3 (C) sp (D) not applicable

3. What is the difference between bond angles in cationic species of PCl_5 and PBr_5 in solid state.

(A) 60° (B) 109°28′ (C) 0° (D) 90°

4. All possible bond angles in anionic part of PCl_5 are.

(A) 109°28′ only (B) 90°, 180° (C) 90°, 120°, 180° (D) 72°, 90°, 180°

5. Which of the following species does not exist?

(A) XeF_3^- (B) XeF_4 (C) XeF_5^- (D) XeF_6

6. **Statement-1:** CH_4 and CH_2F_2 are having regular tetrahedron geometry.

Statement-2 : Both are having same hybridization.

(A) Statement-1 is true, statement-2 is true and statement-2 is correct explanation for statement-1.

(B) Statement-1 is true, statement-2 is true and statement-2 is NOT the correct explanation for statement-1.

(C) Statement-1 is true, statement-2 is false.

(D) Statement-1 is false, statement-2 is true.

More than may be correct

7. Which of following pair of species is having different hybridisation but same shape.

(A) $BeCl_2$ and CO_2 (B) CO_2 and SO_2

(C) SO_2 and I_3^+ (D) ICl_2^- and BeH_2

Paragraph for question nos. 8 to 9

Hybridisation is the mixing of atomic orbital of comparable energy and the number of hybrid orbitals formed is equal to the number of pure atomic orbitals mixed up and hybrid orbitals are occupied by σ-bond pair and lone pair.

8. Which of the following geometry is most likely to not form from sp3d hybridisation of the central atom.

(A) Linear (B) Tetrahedral

(C) T-Shaped (D) See-Saw

9. "The hybrid orbitals are at angle of X° to one another" this statement is not valid for which of the following hybridisation.

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

10. Match the column:

	Column -I (Type of orbital)		**Column-II (Orbitals involved in hybridisation)**
(A)	d_{z^2}-orbital	**(P)**	sp^3 (Tetrahedral)
(B)	s – orbital	**(Q)**	$sp^3 d^2$ (Octahedral)
(C)	d_{x-y^2}-orbital	**(R)**	sp3d (TBP)
(D)	p_y – orbital	**(S)**	dsp^2 (square planar)

ANSWER KEY

DPP-4

1. D **2.** D **3.** C **4.** B **5.** A 6. D

7. C **8.** B **9.** C **10.** **(A)** Q,R **(B)** P,Q,R,S **(C)** Q,S **(D)** P, Q, R, S