INORGANIC CHEMISTRY

DPP

DAILY PRACTICE PROBLEMS

DPP No. 13

Total Marks : 31

Max. Time : 33 min.

Topic : Chemical Bonding

Type of Questions		M.M., Min.
Single choice Objective ('–1' negative marking) Q.1 to Q.5	(3 marks, 3 min.)	[15, 15]
Multiple choice objective ('–1' negative marking) Q.6 to Q.7	(4 marks, 4 min.)	[8, 8]
Match the Following (no negative marking) Q.8	(8 marks, 10 min.)	[8, 10]

1. Which of the following is V-shaped :

(A) S_3^{2-} (B) I_3^- (C) N_3^- (D) none of these

2. Which of the following should have pyramidal shape :

(A) $[ClOF_2]^+$ (B) ICl_3 (C) $[BrICl]^-$ (D) SO_3

3. Accroding to VSEPR theory in $[IO_2F_2]^-$ ion the $F\hat{I}F$ bond angle will be nearly

(A) 120° (B) 90° (C) 109°–28′ (D) 180°

4. Among the following, the pair in which the two species are not isostructural is

(A) IO_3^- and XeO_3 (B) $A\ell H_4^-$ and PH_4^+ (C) AsF_6^- and SF_6 (D) SiF_4 and SeF_4

5. Consider the structures of the following two molecules :

X : $F_2C = C = CF_2$

Y : $F_2B - C \equiv C - BF_2$

In which of these two, it is impossible for all the four F atoms to lie in the same plane :

(A) X (B) Y (C) both (D) none

6.* Which is/are true according to VSEPR theory :

(A) The order of repulsion between different pair of electrons is $\ell p - \ell p > \ell p - bp > bp - bp$
(ℓp = lone pair electrons, bp = bond pair electrons)

(B) Lone pair and double bond occupy equitorial position in trigonal bipyramidal structure.

(C) More electronegative atoms occupy axial position in trigonal bipyramidal structure.

(D) Bigger atoms occupy axial positions in trigonal bipyramidal structure.

7.* In which of the following species, one of bond angle is expected to be more than 120º.

(A) N_2O (B) NO_2^- (C) NO_2^+ (D) XeF_3^+

8. Match the isostructural pairs :

(a) SF_4	(i) IF_6^+
(b) PCl_5	(ii) ClF_4^+
(c) ICl_3	(iii) $SnCl_5^-$
(d) I_3^-	(iv) ClF_3
(e) ICl_4^-	(v) ClF_2^-
(f) PCl_6^-	(vi) XeF_4

Answer Key

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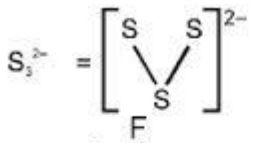
1.	(A)	**2.**	(A)	**3.**	(D).	**4.**	(D)	**5.**	(A)
6.*	(ABC)	**7.***	(ACD)	**8.**	(a-ii) (b-iii) (c- iv) (d-v) (e-vi) (f-i).				

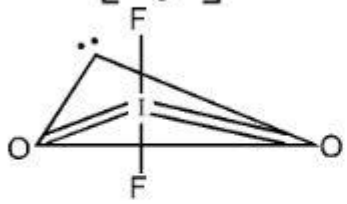
Hints & Solutions

DPP No. # 13

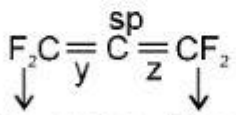
1.



3.



5.



These flourine atoms will be in xz plane

These flourine atoms will be in xy plane

8. (a-ii) (b-iii) (c- iv) (d-v) (e-vi) (f-i).