INORGANIC CHEMISTRY

DPP
DAILY PRACTICE PROBLEMS

DPP No. 9

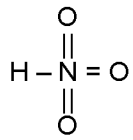
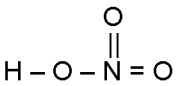
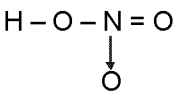
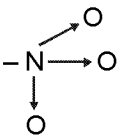
Total Marks : 32

Max. Time : 36 min.

Topic : Chemical Bonding

Type of Questions		M.M., Min.
Single choice Objective ('–1' negative marking) Q.1 to Q.4	(3 marks, 3 min.)	[12, 12]
Match the Following (no negative marking) Q.5	(8 marks, 10 min.)	[8, 10]
Multiple choice objective ('–1' negative marking) Q.6	(4 marks, 4 min.)	[4, 4]
Subjective Questions ('–1' negative marking) Q.7 to Q.8	(4 marks, 5 min.)	[8, 10]

1. The correct representation of Lewis dot structure of HNO_3 is :

(A)  (B)  (C)  (D) 

2. Species not obeying octet rule is/are :

(A) CO_3^{2-} (B) BF_3 (C) NO_2^- (D) PCl_3

3. PCl_5 exists but NCl_5 does not, because :

(A) Nitrogen has no vacant 2d-orbitals (B) N and Cl have almost same EN

(C) N-atom is much smaller than P-atom (D) Nitrogen is highly inert

4. The molecular without any lone pair around the centred atom is :

(A) XeO_3 (B) XeO_4 (C) XeF_6 (D) XeO_2F_2

5. Match the species in column (I) with their characteristics in column (II) :

Column-I	**Column-II**
(P) BH_4^-	(1) 2 bond pair and 3 lone pair on central atom
(Q) ICl_2^+	(2) 4 bond pair and no lone pair on central atom
(R) ICl_2^-	(3) 3 bond pair and 1 lone pair on central atom
(S) ICl_4^-	(4) 2 bond pair and 2 lone pair on central atom
	(5) 4 bond pair and 2 lone pair on central atom

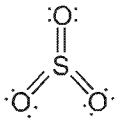
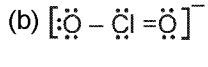
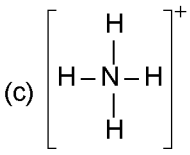
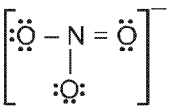
(A) P = 2; Q = 4; R = 3; S = 1 (B) P = 2; Q = 4; R = 1; S = 5

(C) P = 2; Q = 1; R = 5; S = 4 (D) P = 2; Q = 1; R = 3; S = 4

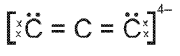
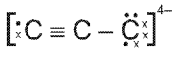
6.* The odd electron molecules among the following is/are :

(A) NO_2 (B) NO (C) ClO_2 (D) CO

7. Assign formal charges to all atoms in the given species :

(a)  (b)  (c)  (d) 

8. Explain on the basis of formal charge, which of the following is a more appropriate structure for C_3^{4-} ion :

 or 

Answer Key

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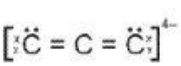
1.	(C)	**2.**	(B)	**3.**	(A)	**4.**	(B)	**5.**	(B)

6.* (A,B,C)

7. (a) All zero
(b) All have zero except single bonded oxygen (–1)
(c) All have zero except nitrogen (+1)
(d) Both single bonded O-atoms have (–1), N-atom has (+1) and double bonded O-atom has zero.

8. 

Hints & Solutions

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1. N–atom can't form hypervalent compound.

7. (a) All zero
(b) All have zero except single bonded oxygen (–1)
(c) All have zero except nitrogen (+1)
(d) Both single bonded O-atoms have (–1), N-atom has (+1) and double bonded O-atom has zero.

8.