

Questions

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Q1 - 2024 (08 Apr Shift 2)

Identify the incorrect statements about group 15 elements :

- (A) Dinitrogen is a diatomic gas which acts like an inert gas at room temperature.
- (B) The common oxidation states of these elements are -3 , $+3$ and $+5$.
- (C) Nitrogen has unique ability to form $p\pi - p\pi$ multiple bonds.
- (D) The stability of $+5$ oxidation states increases down the group.
- (E) Nitrogen shows a maximum covalency of 6.

Choose the correct answer from the options given below :

- (1) (A), (C), (E) only
- (2) (B), (D), (E) only
- (3) (D) and (E) only
- (4) (A), (B), (D) only

Q2 - 2024 (09 Apr Shift 1)

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : Both rhombic and monoclinic sulphur exist as S_8 while oxygen exists as O_2 .

Reason (R) : Oxygen forms $p\pi - p\pi$ multiple bonds with itself and other elements having small size and high electronegativity like C, N, which is not possible for sulphur.

In the light of the above statements, choose the most appropriate answer from the options given below :

- (1) (A) is correct but (R) is not correct
- (2) (A) is not correct but (R) is correct
- (3) Both (A) and (R) are correct and (R) is the correct explanation of (A)
- (4) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

Q3 - 2024 (09 Apr Shift 1)

On reaction of Lead Sulphide with dilute nitric acid which of the following is not formed?

- (1) Nitric oxide

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(2) Nitrous oxide

(3) Lead nitrate

(4) Sulphur

Q4 - 2024 (09 Apr Shift 2)

Number of oxygen atoms present in chemical formula of fuming sulphuric acid is

_____.

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Answer Key

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Q1 (3) mathongo ///. ma Q2 (1) mathongo Q3 (2) mathongo ///. mc Q4 (7) mathongo

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#MathBoleTohMathonGo

Solutions

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Q1

(D) Due to inert pair effect lower oxidation state is more stable.

(E) Nitrogen belongs to 2nd period and cannot expand its octet.

Q2

Oxygen can form $2p\pi - 2p\pi$ multiple bond with itself due to its small size while sulphur cannot form multiple bond with itself as $3p\pi - 3p\pi$ bond will be unstable due to large size of sulphur, but sulphur can form multiple bond with small size atom like C and N.

eg. $S = C = S$ 

Q3

Nitrous oxide (N_2O) is not formed during the reaction.

Q4

Fuming sulphuric acid is a mixture of



So, Number of Oxygen atoms = 7

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