

Questions with Answer Keys

MathonGo

Q1 - 2024 (01 Feb Shift 1)

In case of isoelectronic species the size of F^- , Ne and Na^+ is affected by:

- (1) Principal quantum number (n)
- (2) None of the factors because their size is the same
- (3) Electron-electron interaction in the outer orbitals
- (4) Nuclear charge (z)

Q2 - 2024 (01 Feb Shift 1)

Lowest Oxidation number of an atom in a compound $A_2 B$ is -2. The number of an electron in its valence shell is

Q3 - 2024 (01 Feb Shift 2)

Given below are two statements :

Statement (I) : Both metal and non-metal exist in p and d-block elements.

Statement (II) : Non-metals have higher ionisation enthalpy and higher electronegativity than the metals.

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

- (1) Both Statement I and Statement II are false
- (2) Statement I is false but Statement II is true
- (3) Statement I is true but Statement II is false
- (4) Both Statement I and Statement II are true

Q4 - 2024 (01 Feb Shift 2)

The strongest reducing agent among the following is:

- (1) NH_3
- (2) SbH_3
- (3) BiH_3
- (4) PH_3

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Q5 - 2024 (27 Jan Shift 1)

From the given list, the number of compounds with +4 oxidation state of Sulphur

SO_3 , H_2SO_3 , SOCl_2 , SF_4 , BaSO_4 , $\text{H}_2\text{S}_2\text{O}_7$

Q6 - 2024 (29 Jan Shift 1)

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

Assertion A: The first ionisation enthalpy decreases across a period.

Reason R: The increasing nuclear charge outweighs the shielding across the period.

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

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

Q7 - 2024 (29 Jan Shift 1)

Given below are two statements :

Statement I : The electronegativity of group 14 elements from Si to Pb gradually decreases.

Statement II : Group 14 contains non-metallic, metallic, as well as metalloid elements.

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

- (1) Statement I is false but Statement II is true
- (2) Statement I is true but Statement II is false
- (3) Both Statement I and Statement II are true
- (4) Both Statement I and Statement II are false

Q8 - 2024 (29 Jan Shift 2)

The element having the highest first ionization enthalpy is

- (1) Si

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(2) Al

(3) N

(4) C

Q9 - 2024 (29 Jan Shift 2)

Given below are two statements:

Statement I: Fluorine has most negative electron gain enthalpy in its group.

Statement II: Oxygen has least negative electron gain enthalpy in its group.

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

(1) Both Statement I and Statement II are true

(2) Statement I is true but Statement II is false

(3) Both Statement I and Statement II are false

(4) Statement I is false but Statement II is true

Q10 - 2024 (29 Jan Shift 2)

Anomalous behaviour of oxygen is due to its

(1) Large size and high electronegativity

(2) Small size and low electronegativity

(3) Small size and high electronegativity

(4) Large size and low electronegativity

Q11 - 2024 (30 Jan Shift 1)

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

Assertion (A): There is a considerable increase in covalent radius from N to P. However from As to Bi only a small increase in covalent radius is observed.

Reason (R): covalent and ionic radii in a particular oxidation state increases down the group.

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

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

Q12 - 2024 (30 Jan Shift 1)

if IUPAC name of an element is "Unununnium" then the element belongs to n th group of periodic table. The value of n is _____

Q13 - 2024 (30 Jan Shift 2)

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

Assertion A : H_2Te is more acidic than H_2S .

Reason R: Bond dissociation enthalpy of H_2Te is lower than H_2S .

In the light of the above statements. Choose the most appropriate from the options given below.

- (1) Both A and R are true but R is NOT the correct explanation of A.
- (2) Both A and R are true and R is the correct explanation of A.
- (3) A is false but R is true.
- (4) A is true but R is false.

Q14 - 2024 (30 Jan Shift 2)

Given below are two statements:

Statement - I: Along the period, the chemical reactivity of the element gradually increases from group 1 to group 18.

Statement - II: The nature of oxides formed by group 1 element is basic while that of group 17 elements is acidic.

In the the light above statements, choose the most appropriate from the questions given below:

- (1) Both statement I and Statement II are true.

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(2) Statement I is true but Statement II is False.

(3) Statement I is false but Statement II is true.

(4) Both Statement I and Statement II is false.

Q15 - 2024 (31 Jan Shift 1)

The correct sequence of electron gain enthalpy of the elements listed below is

A. Ar

B. Br

C. F

D. S

Choose the most appropriate from the options given below:

(1) $C > B > D > A$

(2) $A > D > B > C$

(3) $A > D > C > B$

(4) $D > C > B > A$

Q16 - 2024 (31 Jan Shift 2)

Consider the following elements.

Group \downarrow A'B' \rightarrow Period
C'D'

Which of the following is/are true about A' , B' , C' and D' ?

A. Order of atomic radii: $B' < A' < D' < C'$

B. Order of metallic character : $B' < A' < D' < C'$

C. Size of the element: $D' < C' < B' < A'$

D. Order of ionic radii : $B'^+ < A'^+ < D'^+ < C'^+$







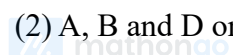





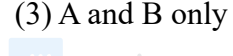

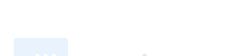


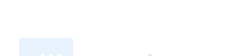
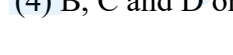





























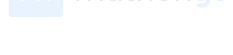
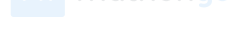
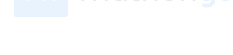
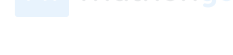
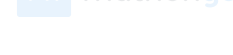
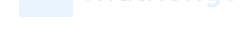
























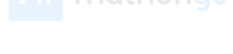

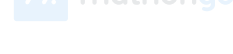
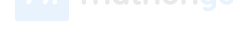

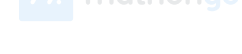


































































Choose the correct answer from the options given below :

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Questions with Answer Keys

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- (1) A only
 - (2) A, B and D only
 - (3) A and B only
 - (4) B, C and D only
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Q1 (4) mathongo /// ma **Q2** (6) mathongo **Q3** (2) mathongo **Q4** (3) mathongo

Q5 (3) mathongo /// ma **Q6** (3) mathongo **Q7** (1) mathongo **Q8** (3) mathongo

Q9 (4) mathongo /// ma **Q10** (3) mathongo **Q11** (2) mathongo **Q12** (11) mathongo

Q13 (2) mathongo /// ma **Q14** (3) mathongo **Q15** (2) mathongo **Q16** (2) mathongo

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Solutions

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Q1

In F^- , Ne , Na^+ all have $1s^2, 2s^2, 2p^6$ configuration. They have different size due to the difference in nuclear charge.

Q2

$A_2B \rightarrow 2A^+ + B^{2-}$, B^{2-} has complete octet in its dianionic form, thus in its atomic state it has 6 electrons in its valence shell. As it has negative charge, it has acquired two electrons to complete its octet.

Q3

I. In p-Block both metals and non metals are present but in d-Block only metals are present.

II. EN and IE of non metals are greater than that of metals

I - False, II-True

Q4

Strongest reducing agent : BiH_3 explained by its low bond dissociation energy.

Q5

Compounds	SO_3	H_2SO_3	$SOCl_2$	SF_4	$BaSO_4$	$H_2S_2O_7$
O.S.of Sulphur:	+6	+4	+4	+4	+6	+6

Q6

First ionisation energy increases along the period. Along the period Z increases which outweighs the shielding effect

Q7

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Solutions

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Gr-14	EN	mathongo	mathongo	mathongo	mathongo	mathongo
C	2.5	mathongo	mathongo	mathongo	mathongo	mathongo
Si	1.8	mathongo	mathongo	mathongo	mathongo	mathongo
Ge	1.8	mathongo	mathongo	mathongo	mathongo	mathongo
Sn	1.8	mathongo	mathongo	mathongo	mathongo	mathongo
Pb	1.9	mathongo	mathongo	mathongo	mathongo	mathongo

The electronegativity values for elements from Si to Pb are almost same. So Statement I is false.

Q8

$Al < Si < C < N$; IE_1 order.

Q9

Statement-1 is false because chlorine has most negative electron gain enthalpy in its group.

Q10

Fact Based.

Q11

According to NCERT,

Statement-I : Factual data,

Statement-II is true.

But correct explanation is presence of completely filled d and f-orbitals of heavier members

Q12

11 belongs to 11th group

Q13

Due to lower Bond dissociation enthalpy of H_2Te it ionizes to give H^+ more easily than H_2S .

Q14

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Solutions

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Chemical reactivity of elements decreases along the period therefore statement –I is false.

Group - 1 elements form basic nature oxides while group - 17 elements form acidic oxides therefore statement - II is true.

Q15

Element $\Delta_{\text{eg}}H(\text{kJ/mol})$

F -333

S -200

Br -325

Ar +96

Q16

In general along the period from left to right, size decreases and metallic character decrease.

In general down the group, size increases and metallic character increases.

$B' < A'$ (size) $C' > A'$ (size)

$D' < C'$ (size) $D' > B'$ (size)

$B' < A'$ (metallic character)

$D' < C'$ (metallic character)

$B'^+ < A'^+$ (size)

$D'^+ < C'^+$ (size)

\therefore C statement is incorrect.

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