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CHEMISTRY · JEE MAIN

Periodic Table & Periodicity

Previous Year Questions with answers

182 questions · **154** papers · **2003–2026** · newest paper first

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What is in this PDF: every Periodic Table & Periodicity question we hold from past JEE Main and AIEEE papers, with its options and answer. Where an answer comes from a source other than the official final key, it says so next to the answer.

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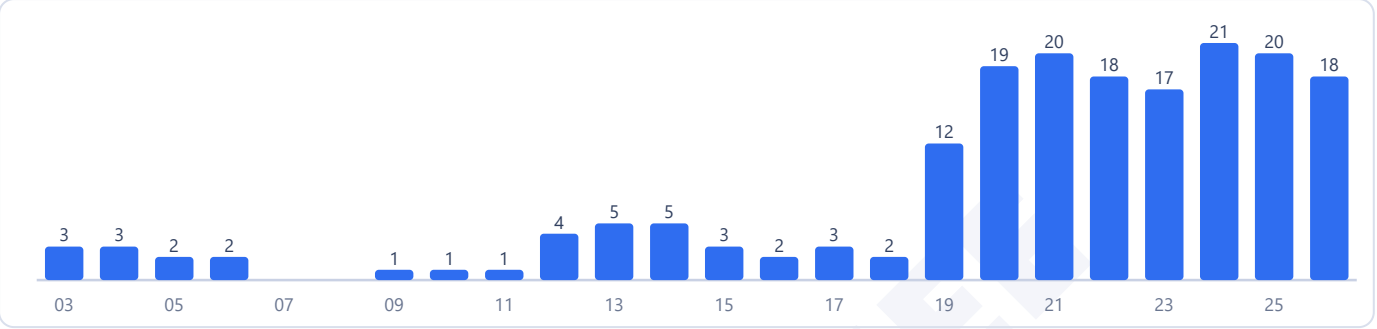
Chapter at a glance

3.2%	182	125 of 162	174 / 8
of Chemistry questions, 2019–2026	questions, 2003–2026	papers asked it, 2019–2026	MCQ / numerical, 2003–2026

Trend. Steady: 1 questions per paper in 2024–2026 against 0.8 in 2019–2023.

Questions per year



Counts are the questions we hold: 182 in 154 papers. 2 questions in this chapter came back in more than one paper.

Most-asked topics in this chapter (2003–2026)

Periodic Trends	157
Periodic Table	25

How often it comes up

Periodic table and periodicity establishes periodic trends under Unit 9: Classification of Elements and Periodicity in Properties in the Class 11 curriculum, holding rank 16 of 31 chapters with a 3.2% share of the chemistry section. Between 2019 and 2026, Periodic Table & Periodicity yielded 145 questions across 162 exam papers, corresponding to a 3.2% share of the chemistry section and holding rank 16 of 31 chapters. In the earlier testing phase from 2002 to 2018, the chapter accounted for 37 questions across 38 papers, delivering a 2.8% share. Recent sessions from 2024 to 2026 saw 59 questions across 58 papers, representing a 3.8% share. The chapter's testing trend has moved up across recent exam sessions.

Questions have appeared every year from 2019 to 2026. Across the 2019 to 2026 span, it averaged 0.9 questions per paper, rising to 1.0 question per paper in the 2024 to 2026 interval. Because the subject matter is primarily qualitative, numerical answer questions are uncommon here, with only 8 recorded from 2019 to 2026.

Most-asked topics

The syllabus divides into two main topics:

- Periodic Trends: Represents the overwhelming majority with 157 total questions (123 during 2019 to 2026), evaluated consistently through 2026. Subtopics feature first and successive ionisation enthalpy irregularities, isoelectronic species sizing, electron gain enthalpy anomalies, and acidic versus basic oxide characteristics.
- Periodic Table: Accounted for 25 total questions (22 during 2019 to 2026), last tested in 2025. Coverage involves atomic number assignments, IUPAC nomenclature for super-heavy elements, electronic subshell assignments, and classifying elements into s, p, d, and f blocks.

What the questions look like

Test items frequently present four elements or ions and ask candidates to arrange them in order of an atomic property or identify the single incorrect sequence. Isoelectronic series (such as oxide, fluoride, sodium, and

magnesium ions) appear regularly, where students determine size orders by comparing nuclear charge.

Another staple pattern involves successive ionisation energies, where a dramatic jump between consecutive removal steps signals valence shell emptying. Questions also evaluate anomalous electron affinity values in the second period compared to the third period, caused by interelectronic repulsions in compact valence shells.

How to practise it

Mastering periodicity requires memorizing both the regular baseline trends and their notable exceptions:

1. Learn electronic configurations thoroughly: Exceptional trends in ionisation enthalpy (such as nitrogen exceeding oxygen, or beryllium exceeding boron) stem directly from stable half-filled or completely filled subshells. 2. Master isoelectronic radii: For ions with identical electron counts, radius decreases strictly with increasing atomic number because the higher positive nuclear charge pulls the electron cloud closer. 3. Understand second-period electron affinity anomalies: Fluorine and oxygen possess lower electron gain enthalpies than chlorine and sulfur due to intense repulsions inside their compact valence shells. 4. Categorize oxides systematically: Memorize standard amphoteric oxides (such as those of zinc, aluminum, beryllium, and tin) and neutral oxides (carbon monoxide, nitric oxide, nitrous oxide). 5. Practise multi-statement matching problems: Modern papers often combine four separate periodic properties into one question.

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Q1 JEE Main 2026 · 8 Apr · Shift 2 MCQ

Match **List - I** with **List - II**.

List - I Electronic configuration of neutral atom (where n = 2)	**List - II 1st Ionization Energy (kJ mol $^{-1}$)**
A. ns^2	I. 2080
B. ns^2np^1	II. 899
C. ns^2np^3	III. 800
D. ns^2np^6	IV. 1402

Choose the **correct** answer from the options given below :

(A) A-II, B-III, C-IV, D-I
(B) A-IV, B-III, C-II, D-I
(C) A-III, B-II, C-IV, D-I
(D) A-III, B-II, C-I, D-IV

Answer: (A) A-II, B-III, C-IV, D-I · Official NTA final key

Q2 JEE Main 2026 · 6 Apr · Shift 1 Numerical

First and second ionization enthalpies of lithium are 520 kJ mol^{-1} and 7297 kJ mol^{-1} respectively. Energy required to convert 3.5 mg lithium (g) into Li^{2+}(g) [Li(g) $\rightarrow$ Li^{2+}(g)] is _____ kJ mol^{-1}. (nearest integer)
[Molar mass of Li = 7 g mol^{-1}]

Numerical value type: the answer is a number.

Answer: 4. · Official NTA final key

Q3 JEE Main 2026 · 6 Apr · Shift 2 MCQ

In a period, the first ionisation enthalpy of the element at extreme left and the negative electron gain enthalpy of the extreme right element, except noble gases, are respectively.

(A) lowest and lowest
(B) highest and lowest
(C) lowest and highest
(D) highest and highest

Answer: (C) lowest and highest · Official NTA final key

Q4 JEE Main 2026 · 5 Apr · Shift 1 MCQ

Given below are two statements:

Statement I: The correct order of electronegativity of fluorine, oxygen and nitrogen is F > O > N.

Statement II: The oxidation state of oxygen in OF_2 is +2 and in Na_2O is -2.

In the light of the above statements, choose the *correct* answer from the options given below

(A) Both Statement I and Statement II are true
(B) Both Statement I and Statement II are false
(C) Statement I is true but Statement II is false
(D) Statement I is false but Statement II is true

Answer: (A) Both Statement I and Statement II are true · Official NTA final key

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Q5 JEE Main 2026 · 5 Apr · Shift 2 MCQ

Given below are two statements :

Statement I : The number of pairs among $[Al_2O_3, Cr_2O_3]$, $[Cl_2O_7, Mn_2O_7]$, $[Na_2O, V_2O_3]$ and $[CO, N_2O]$ that contain oxides of same nature (acidic, basic, neutral or amphoteric) is 4.

Statement II : Among Na_2O, Al_2O_3, CO and Cl_2O_7, the most basic and acidic oxides are Na_2O and Cl_2O_7, respectively.

In the light of the above statements, choose the **correct** answer from the options given below :

(A) Both **Statement I** and **Statement II** are true
(B) Both **Statement I** and **Statement II** are false
(C) **Statement I** is true but **Statement II** is false
(D) **Statement I** is false but **Statement II** is true

Answer: (A) Both Statement I and Statement II are true · Official NTA final key

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Q6 JEE Main 2026 · 4 Apr · Shift 2 MCQ

The 1st ionization enthalpy for Mg is +737 kJ/mol. The most probable estimated value of the 2nd ionization enthalpy of Mg is _____.

(A) -906 kJ/mol
(B) -856 kJ/mol
(C) +1450 kJ/mol
(D) +590 kJ/mol

Answer: (C) +1450 kJ/mol · Official NTA final key

Q7 JEE Main 2026 · 2 Apr · Shift 1 MCQ

Given below are two statements :

Statement (I) : The first ionisation enthalpy of the elements Na, Mg, Cl and Ar follows the order Na > Mg > Cl > Ar.

Statement (II) : Among Ca, Al, Fe and B, the third ionisation enthalpy is very high for Ca.

In the light of the above statements, choose the **correct answer** from the options given below :

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(A) Both **Statement I** and **Statement II** are true
(B) Both **Statement I** and **Statement II** are false
(C) **Statement I** is true but **Statement II** is false
(D) **Statement I** is false but **Statement II** is true

Answer: (D) Statement I is false but **Statement II** is true · Official NTA final key

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Q8 JEE Main 2026 · 2 Apr · Shift 2 MCQ

The correct set that contains all kinds (basic, acidic, amphoteric and neutral) of oxides is :

(A) Na_2O, K_2O, Al_2O_3 and As_2O_3
(B) Al_2O_3, As_2O_3, CO and NO
(C) K_2O, Cl_2O_7, As_2O_3 and NO
(D) Na_2O, N_2O, Al_2O_3 and CO

Answer: (C) K_2O, Cl_2O_7, As_2O_3 **and NO** · Official NTA final key

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Q9 JEE Main 2026 · 2 Apr · Shift 2 MCQ

Given below are two statements :

Statement I : The second ionization enthalpy of B, Al and Ga is in the order of B > Al > Ga.

Statement II : The correct order in terms of first ionization enthalpy is Si < Ge < Pb < Sn.

In the light of the above statements, choose the **correct** answer from the options given below :

(A) Both **Statement I** and **Statement II** are true
(B) Both **Statement I** and **Statement II** are false
(C) **Statement I** is true but **Statement II** is false
(D) **Statement I** is false but **Statement II** is true

Answer: (B) Both **Statement I** and **Statement II** are false · Official NTA final key

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Q10 JEE Main 2026 · 28 Jan · Shift 1 MCQ

In period 4 of the periodic table, the elements with highest and lowest atomic radii are respectively.

(A) K & Se
(B) K & Br
(C) Rb & Br
(D) Na & Cl

Answer: (B) K & Br · Official NTA final key

Q11 JEE Main 2026 · 28 Jan · Shift 2 MCQ

Consider the elements N, P, O, S, Cl and F. The number of valence electrons present in the elements with most and least metallic character from the above list is respectively.

(A) 7 and 5
(B) 6 and 7
(C) 5 and 6
(D) 5 and 7

Answer: (D) 5 and 7 · Official NTA final key

Q12 JEE Main 2026 · 24 Jan · Shift 1 MCQ

Given below are two statements:

Statement I: K > Mg > Al > B is the correct order in terms of metallic character.

Statement II: Atomic radius is always greater than the ionic radius for any element.

In the light of the above statements, choose the *__correct__* answer from the options given below

(A) Statement I is false but Statement II is true
(B) Statement I is true but Statement II is false
(C) Both Statement I and Statement II are false
(D) Both Statement I and Statement II are true

Answer: (B) Statement I is true but Statement II is false · Official NTA final key

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Q13 JEE Main 2026 · 24 Jan · Shift 2 MCQ

The correct order of C, N, O and F in terms of second ionisation potential is

(A) C < N < F < O
(B) F < N < C < O
(C) C < O < N < F
(D) C < F < N < O

Answer: (A) C < N < F < O · Official NTA final key

Q14 JEE Main 2026 · 23 Jan · Shift 1 MCQ

The correct trend in the first ionization enthalpies of the elements in the 3rd period of periodic table is :

(A) Al<Si<S<P<Cl
(B) Si<S<Al<P<Cl
(C) S<Si<Al<P<Cl
(D) Al<S<P<Si<Cl

Answer: (A) Al<Si<S<P<Cl · Official NTA final key

Q15 JEE Main 2026 · 23 Jan · Shift 2 MCQ

Given below are two statements:

Statement I: The second ionisation enthalpy of Na is larger than the corresponding ionisation enthalpy of Mg.

Statement II: The ionic radius of O^{2-} is larger than that of F^{-}.

In the light of the above statements, choose the **correct** answer from the options given below

(A) Statement I is true but Statement II is false
(B) Statement I is false but Statement II is true
(C) Both Statement I and Statement II are true
(D) Both Statement I and Statement II are false

Answer: (C) Both Statement I and Statement II are true · Official NTA final key

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Q16 JEE Main 2026 · 22 Jan · Shift 2 MCQ

Given below are two statements :

Statement I : $C < O < N < F$ is the correct order in terms of first ionization enthalpy values.

Statement II : $S > Se > Te > Po > O$ is the correct order in terms of the magnitude of electron gain enthalpy values.

In the light of the above statements, choose the **correct** answer from the options given below :

(A) **Statement I** is false but **Statement II** is true
(B) Both **Statement I** and **Statement II** are true
(C) Both **Statement I** and **Statement II** are false
(D) **Statement I** is true but **Statement II** is false

Answer: (B) Both Statement I and Statement II are true · Official NTA final key

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Q17 JEE Main 2026 · 21 Jan · Shift 1 MCQ

Which of the following represents the correct trend for the mentioned property ?

A. $F > P > S > B$ - First Ionization Energy

B. $Cl > F > S > P$ - Electron Affinity

C. $K > Al > Mg > B$ - Metallic character

D. $K_2O > Na_2O > MgO > Al_2O_3$ - Basic character

Choose the **correct** answer from the options given below :

(A) A, B and D only
(B) A and B only
(C) B and C only
(D) A, B, C and D

Answer: (A) A, B and D only · Official NTA final key

Q18 JEE Main 2026 · 21 Jan · Shift 2 MCQ

Given below are two statements :

Statement I : The correct order in terms of atomic/ionic radii is $\mathrm{Al} > \mathrm{Mg} > \mathrm{Mg}^{2+} > \mathrm{Al}^{3+}$.

Statement II : The correct order in terms of the magnitude of electron gain enthalpy is $\mathrm{Cl} > \mathrm{Br} > \mathrm{S} > \mathrm{O}$.

In the light of the above statements, choose the **correct** answer from the options given below :

(A) Both **Statement I** and **Statement II** are false
(B) Both **Statement I** and **Statement II** are true
(C) **Statement I** is false but **Statement II** is true
(D) **Statement I** is true but **Statement II** is false

Answer: (C) Statement I is false but **Statement II** is true · Official NTA final key

Q19 JEE Main 2025 · 8 Apr · Shift 2 MCQ

The atomic number of the element from the following with lowest 1st ionisation enthalpy is :

(A) 32
(B) 87
(C) 35
(D) 19

Answer: (B) 87 · Key from source paper

Q20 JEE Main 2025 · 7 Apr · Shift 2 MCQ

Choose the incorrect trend in the atomic radii (r) of the elements.

(A) $r_{At} < r_{CS}$
(B) $r_{Br} < r_{K}$
(C) $r_{Mg} < r_{Al}$
(D) $r_{Rb} < r_{Cs}$

Answer: (C) $r_{Mg} < r_{Al}$ · Key from source paper

Q21 JEE Main 2025 · 3 Apr · Shift 1 MCQ

Which of the following statements are correct?

A. The process of adding an electron to a neutral gaseous atom is always exothermic.

B. The process of removing an electron from an isolated gaseous atom is always endothermic.

C. The 1st ionization energy of boron is less than that of beryllium.

D. The electronegativity of C is 2.5 in CH_4 and CCl_4

E. Li is the most electropositive among elements of group I .

Choose the correct answer from the options given below:

(A) B, C and E Only
(B) A, C and D Only
(C) B and C Only
(D) B and D Only

Answer: (C) B and C Only · Key from source paper

Q22 JEE Main 2025 · 3 Apr · Shift 2 MCQ

Match the LIST-I with LIST-II

List-I (Family)	List-II (Symbol of Element)
A. Pnictogen (group 15)	I. Ts
B. Chalcogen	II. Og
C. Halogen	III. Lv
D. Noble gas	IV. Mc

Choose the correct answer from the options given below:

(A) A-IV, B-III, C-I, D-II
(B) A-II, B-III, C-IV, D-I
(C) A-IV, B-I, C-II, D-III
(D) A-III, B-I, C-IV, D-II

Answer: (A) A-IV, B-III, C-I, D-II · Key from source paper

Q23 JEE Main 2025 · 2 Apr · Shift 1 MCQ

The property/properties that show irregularity in first four elements of group-17 is/are :

(A) Covalent radius (B) Electron affinity (C) Ionic radius (D) First ionization energy

Choose the correct answer from the options given below :

(A) B only
(B) B and D only
(C) A and C only
(D) A, B, C and D

Answer: (A) B only · Key from source paper

Q24 JEE Main 2025 · 2 Apr · Shift 2 MCQ

Electronic configuration of four elements A,B,C and D are given below :

(A) $1s^2 2s^2 2p^3$ (B) $1s^2 2s^2 2p^4$ (C) $1s^2 2s^2 2p^5$ (D) $1s^2 2s^2 2p^2$

Which of the following is the correct order of increasing electronegativity (Pauling's scale) ?

(A) $A < C < B < D$
(B) $A < B < C < D$
(C) $A < D < B < C$
(D) $D < A < B < C$

Answer: (D) $D < A < B < C$ · Key from source paper

Q25 JEE Main 2025 · 29 Jan · Shift 1 MCQ

An element ' E' has the ionisation enthalpy value of 374 kJ mol^{-1}. ' E ' reacts with elements A, B, C and D with electron gain enthalpy values of $-328, -349, -325$ and -295 kJ mol^{-1}, respectively. The correct order of the products EA, EB, EC and ED in terms of ionic character is :

(A) ED > EC > EB > EA
(B) EA > EB > EC > ED
(C) EB > EA > EC > ED
(D) ED > EC > EA > EB

Answer: (C) EB > EA > EC > ED · Key from source paper

Q26 JEE Main 2025 · 29 Jan · Shift 1 MCQ

Given below are two statements : Statement (**I**): The radii of isoelectronic species increases in the order. $\mathrm{Mg}^{2+} < \mathrm{Na}^{+} < \mathrm{F}^{-} < \mathrm{O}^{2-}$ Statement (II): The magnitude of electron gain enthalpy of halogen decreases in the order. Cl > F > Br > I In the light of the above statements, choose the most appropriate answer from the options given below :

(A) Statement I is incorrect but Statement II is correct
(B) Statement I is correct but Statement II is incorrect
(C) Both Statement I and Statement II are incorrect
(D) Both Statement I and Statement II are correct

Answer: (D) Both Statement I and Statement II are correct · Key from source paper

Q27 JEE Main 2025 · 29 Jan · Shift 2 MCQ

The type of oxide formed by the element among Li, Na, Be, Mg, B and Al that has the least atomic radius is :

(A) $\mathrm{A_2O}$
(B) $\mathrm{A_2O_3}$
(C) $\mathrm{AO_2}$
(D) AO

Answer: (B) $\mathrm{A_2O_3}$ · Key from source paper

Q28 JEE Main 2025 · 28 Jan · Shift 1 MCQ

Consider the following elements In, Tl, Al, Pb, Sn and Ge . The most stable oxidation states of elements with highest and lowest first ionisation enthalpies, respectively, are

(A) +4 and +1
(B) +1 and +4
(C) +4 and +3
(D) +2 and +3

Answer: (C) +4 and +3 · Key from source paper

Q29 JEE Main 2025 · 28 Jan · Shift 1 MCQ

The incorrect decreasing order of atomic radii is

(A) Si > P > Cl > F
(B) Be > Mg > Al > Si
(C) Al > B > N > F
(D) Mg > Al > C > O

Answer: (B) Be > Mg > Al > Si · Key from source paper

Q30 JEE Main 2025 · 28 Jan · Shift 2 MCQ

Given below are two statements : **Statement (I):** According to the Law of Octaves, the elements were arranged in the increasing order of their atomic number. **Statement (II):** Meyer observed a periodically repeated pattern upon plotting physical properties of certain elements against their respective atomic numbers. In the light of the above statements, choose the correct answer from the options given below :

(A) Both Statement (I) and Statement (II) are false.
(B) Both Statement (I) and Statement (II) are true.
(C) Statement (I) is false but Statement (II) is true.
(D) Statement (I) is true but Statement (II) is false.

Answer: (A) Both Statement (I) and Statement (II) are false. · Checked by our team

Q31 JEE Main 2025 · 24 Jan · Shift 1 MCQ

Which of the following statements are NOT true about the periodic table? A. The properties of elements are function of atomic weights. B. The properties of elements are function of atomic numbers. C. Elements having similar outer electronic configurations are arranged in same period. D. An element's location reflects the quantum numbers of the last filled orbital. E. The number of elements in a period is same as the number of atomic orbitals available in energy level that is being filled. Choose the correct answer from the options given below:

(A) A, C and E Only
(B) A and E Only
(C) B, C and E Only
(D) D and E Only

Answer: (A) A, C and E Only · Key from source paper

Q32 JEE Main 2025 · 24 Jan · Shift 2 MCQ

Given below are two statements :

Statement (I) : The first ionization energy of Pb is greater than that of Sn .

Statement (II) : The first ionization energy of Ge is greater than that of Si .

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

(A) Statement I is false but Statement II is true
(B) Statement I is true but Statement II is false
(C) Both Statement I and Statement II are true
(D) Both Statement I and Statement II are false

Answer: (B) Statement I is true but Statement II is false · Key from source paper

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Q33 JEE Main 2025 · 24 Jan · Shift 2 MCQ

The successive 5 ionisation energies of an element are 800, 2427, 3658, 25024 and 32824 kJ/mol, respectively. By using the above values predict the group in which the above element is present :

(A) Group 13
(B) Group 14
(C) Group 2
(D) Group 4

Answer: (A) Group 13 · Key from source paper

Q34 JEE Main 2025 · 23 Jan · Shift 1 MCQ

The element that does not belong to the same period of the remaining elements (modern periodic table) is:

(A) Iridium
(B) Platinum
(C) Osmium
(D) Palladium

Answer: (D) Palladium · Key from source paper

Q35 JEE Main 2025 · 23 Jan · Shift 2 MCQ

Given below are two statements about X-ray spectra of elements : Statement (I) : A plot of $\sqrt{v}$ (v = frequency of X-rays emitted) vs atomic mass is a straight line. Statement (II) : A plot of v(v = frequency of X-rays emitted) vs atomic number is a straight line. In the light of the above statements, choose the correct answer from the options given below :

(A) Both Statement I and Statement II are true
(B) Statement I is false but Statement II is true
(C) Both Statement I and Statement II are false
(D) Statement I is true but Statement II is false

Answer: (C) Both Statement I and Statement II are false · Key from source paper

Q36 JEE Main 2025 · 22 Jan · Shift 1 MCQ

Which of the following electronegativity order is incorrect?

(A) Mg < Be < B < N
(B) S < Cl < O < F
(C) Al < Si < C < N
(D) Al < Mg < B < N

Answer: (D) Al < Mg < B < N · Key from source paper

Q37 JEE Main 2025 · 22 Jan · Shift 1 MCQ

Match List-I with List-II.

List – I	cList – II
(A) $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$	(I) IonisationEnthalpy
(B) B < C < O < N	(II) Metalliccharacter
(C) B < Al < Mg < K	(III) Electronegativity
(D) Si < P < S < Cl	(IV) Ionicradii

Choose the correct answer from the options given below :

(A) (A)-(IV), (B)-(I), (C)-(II), (D)-(III)
(B) (A)-(IV), (B)-(I), (C)- (III), (D)-(II)
(C) (A)-(III), (B)-(IV), (C)- (II), (D)-(I)
(D) (A)-(II), (B)-(III), (C)-(IV), (D)-(I)

Answer: (A) (A)-(IV), (B)-(I), (C)-(II), (D)-(III) · Key from source paper

Q38 JEE Main 2025 · 22 Jan · Shift 2 MCQ

Given below are two statements : Statement (I) : An element in the extreme left of the periodic table forms acidic oxides. Statement (II) : Acid is formed during the reaction between water and oxide of a

reactive element present in the extreme right of the periodic table. In the light of the above statements, choose the correct answer from the options given below :

(A) Statement I is true but Statement II is false
(B) Both Statement I and Statement II are true
(C) Both Statement I and Statement II are false
(D) Statement I is false but Statement II is true

Answer: (D) Statement I is false but Statement II is true · Key from source paper

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Q39 JEE Main 2024 · 9 Apr · Shift 1 MCQ

Given below are two statements : Statement (I) : The oxidation state of an element in a particular compound is the charge acquired by its atom on the basis of electron gain enthalpy consideration from other atoms in the molecule. Statement (II) : $p\pi-p\pi$ bond formation is more prevalent in second period elements over other periods. In the light of the above statements, choose the most appropriate answer from the options given below :

(A) Both Statement I and Statement II are correct
(B) Both Statement I and Statement II are incorrect
(C) Statement I is incorrect but Statement II is correct
(D) Statement I is correct but Statement II is incorrect

Answer: (C) Statement I is incorrect but Statement II is correct · Key from source paper

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Q40 JEE Main 2024 · 8 Apr · Shift 1 MCQ

Match List I with List II Choose the correct answer from the options given below:

List - I (Elements)	List - II (Properties in their respective groups)
A. Cl, S	I. Elements with highest electronegativity
B. Ge, As	II. Elements with largest atomic size
C. Fr, Ra	III. Elements which show properties of both metals and non-metal
D. F, O	IV. Elements with highest negative electron gain enthalpy

(A) A-II, B-I, C-IV, D-III
(B) A-III, B-II, C-I, D-IV
(C) A-IV, B-III, C-II, D-I
(D) A-II, B-III, C-IV, D-I

Answer: (C) A-IV, B-III, C-II, D-I · Key from source paper

Q41 JEE Main 2024 · 8 Apr · Shift 2 MCQ

Identify the correct statements about p-block elements and their compounds. (A) Non metals have higher electronegativity than metals. (B) Non metals have lower ionisation enthalpy than metals. (C) Compounds formed between highly reactive nonmetals and highly reactive metals are generally ionic.

(D) The non-metal oxides are generally basic in nature. (E) The metal oxides are generally acidic or neutral in nature. Choose the correct answer from the options given below :

(A) (B) and (D) only
(B) (A) and (C) only
(C) (D) and (E) only
(D) (B) and (E) only

Answer: (B) (A) and (C) only · Key from source paper

Q42 JEE Main 2024 · 6 Apr · Shift 1 MCQ

The electron affinity value are negative for A. Be $\rightarrow Be^{-}$ B. N $\rightarrow N^{-}$ C. O $\rightarrow O^{2-}$ D. Na $\rightarrow Na^{-}$ E. Al $\rightarrow Al^{-}$ Choose the most appropriate answer from the options given below :

(A) D and E only
(B) A, B and C only
(C) A and D only
(D) A, B, D and E only

Answer: (B) A, B and C only · Key from source paper

Q43 JEE Main 2024 · 5 Apr · Shift 1 MCQ

The statement(s) that are correct about the species O^{2-}, F^{-}, Na^{+} and Mg^{2+}. (A) All are isoelectronic (B) All have the same nuclear charge (C) O^{2-} has the largest ionic radii (D) Mg^{2+} has the smallest ionic radii Choose the most appropriate answer from the options given below :

(A) (B), (C) and (D) only
(B) (C) and (D) only
(C) (A), (C) and (D) only
(D) (A), (B), (C) and (D)

Answer: (C) (A), (C) and (D) only · Key from source paper

Q44 JEE Main 2024 · 5 Apr · Shift 2 MCQ

Given below are two statements : Statement I : The metallic radius of Na is 1.86 A° and the ionic radius of Na^{+} is lesser than 1.86 A°. Statement II : Ions are always smaller in size than the corresponding elements. In the light of the above statements, choose the correct answer from the options given below :

(A) Both Statement I and Statement II are false
(B) Statement I is incorrect but Statement II is true
(C) Both Statement I and Statement II are true
(D) Statement I is correct but Statement II is false

Answer: (D) Statement I is correct but Statement II is false · Key from source paper

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Q45 JEE Main 2024 · 4 Apr · Shift 1 MCQ

Number of elements from the following that CANNOT form compounds with valencies which match with their respective group valencies is _____. B, C, N, S, O, F, P, Al, Si

(A) 7
(B) 3
(C) 5
(D) 6

Answer: (B) 3 · Key from source paper

Q46 JEE Main 2024 · 4 Apr · Shift 1 MCQ

The correct order of first ionization enthalpy values of the following elements is : (A) O (B) N (C) Be (D) F (E) B Choose the correct answer from the options given below :

(A) E < C < A < B < D
(B) C < E < A < B < D
(C) B < D < C < E < A
(D) A < B < D < C < E

Answer: (A) E < C < A < B < D · Key from source paper

Q47 JEE Main 2024 · 4 Apr · Shift 2 MCQ

Given below are two statements : Statement I : The correct order of first ionization enthalpy values of Li, Na, F and Cl is Na < Li < Cl < F. Statement II : The correct order of negative electron gain enthalpy values of Li, Na, F and Cl is Na < Li < F < Cl In the light of the above statements, choose the correct answer from the options given below :

(A) Statement I is true but Statement II is false
(B) Statement I is false but Statement II is true
(C) Both Statement I and Statement II are false
(D) Both Statement I and Statement II are true

Answer: (D) Both Statement I and Statement II are true · Key from source paper

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Q48 JEE Main 2024 · 1 Feb · Shift 1 MCQ

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

(A) Principal quantum number n
(B) None of the factors because their size is the same
(C) Electron-electron interaction in the outer orbitals
(D) Nuclear charge z

Answer: (D) Nuclear charge z · Key from source paper

Q49 JEE Main 2024 · 1 Feb · Shift 1 Numerical

Lowest Oxidation number of an atom in a compound A_2B is -2 . The number of an electron in its valence shell is

Numerical value type: the answer is a number.

Answer: 6. · Key from source paper

Q50 JEE Main 2024 · 1 Feb · Shift 1 Numerical

Among the following oxides of p-block elements, number of oxides having amphoteric nature is _____ :

Cl_2O_7, CO, PbO_2, N_2O, NO, Al_2O_3, SiO_2, N_2O_5, SnO_2

Numerical value type: the answer is a number.

Answer: 3. · Key from source paper

Q51 JEE Main 2024 · 1 Feb · Shift 2 MCQ

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:

(A) Both Statement I and Statement II are false
(B) Statement I is false but Statement II is true
(C) Statement I is true but Statement II is false
(D) Both Statement I and Statement II are true

Answer: (B) Statement I is false but Statement II is true · Key from source paper

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Q52 JEE Main 2024 · 31 Jan · Shift 1 MCQ

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:

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

Answer: (B) A > D > B > C · Key from source paper

Q53 JEE Main 2024 · 31 Jan · Shift 2 MCQ

Consider the following elements.

(see the figure above)

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:

Q33. Consider the following elements.

Group ↓ A'B' → 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:

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

(A) A only
(B) A, B and D only
(C) A and B only
(D) B, C and D only

Answer: (B) A, B and D only · Key from source paper

Q54 JEE Main 2024 · 30 Jan · Shift 1 Numerical

If IUPAC name of an element is "Ununnnium" then the element belongs to nth group of periodic table. The value of n is _____.

Numerical value type: the answer is a number.

Answer: 11. · Key from source paper

Q55 JEE Main 2024 · 30 Jan · Shift 2 MCQ

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:

(A) Both statement I and Statement II are true.
(B) Statement I is true but Statement II is False.
(C) Statement I is false but Statement II is true.
(D) Both Statement I and Statement II are false.

Answer: (C) Statement I is false but Statement II is true. · Key from source paper

Q56 JEE Main 2024 · 29 Jan · Shift 1 MCQ

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:

(A) Both A and R are true and R is the correct explanation of A
(B) A is true but R is false
(C) A is false but R is true
(D) Both A and R are true but R is NOT the correct explanation of A

Answer: (C) A is false but R is true · Key from source paper

Q57 JEE Main 2024 · 29 Jan · Shift 2 MCQ

The element having the highest first ionization enthalpy is

(A) Si
(B) Al
(C) N
(D) C

Answer: (C) N · Key from source paper

Q58 JEE Main 2024 · 29 Jan · Shift 2 MCQ

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.

(A) Both Statement I and Statement II are true
(B) Statement I is true but Statement II is false
(C) Both Statement I and Statement II are false
(D) Statement I is false but Statement II is true

Answer: (D) Statement I is false but Statement II is true · Key from source paper

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Q59 JEE Main 2024 · 27 Jan · Shift 1 MCQ

Given below are two statements :

Statement (I) : The 4f and 5f - series of elements are placed separately in the Periodic table to preserve the principle of classification.

Statement (II) : s-block elements can be found in pure form in nature.

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

(A) Statement I is false but Statement II is true
(B) Both Statement I and Statement II are true
(C) Statement I is true but Statement II is false
(D) Both Statement I and Statement II are false

Answer: (C) Statement I is true but Statement II is false · Key from source paper

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Q60 JEE Main 2023 · 13 Apr · Shift 1 MCQ

Which of the following statements are not correct?
A. The electron gain enthalpy of F is more negative than that of Cl.
B. Ionization enthalpy decreases in a group of periodic table.
C. The electronegativity of an atom depends upon the atoms bonded to it.
D. Al_2O_3 and NO are examples of amphoteric oxides.
Choose the most appropriate answer from the options given below:

(A) A, B, C and D
(B) A, B and D only
(C) B and D only
(D) A, C and D only

Answer: (D) A, C and D only · Key from source paper

Q61 JEE Main 2023 · 11 Apr · Shift 1 MCQ

For elements B, C, N Li, Be, O and F, the correct order of first ionisation enthalpy is

(A) Li < Be < B < C < O < N < F
(B) B < Li < Be < C < N < O < F
(C) Li < Be < B < C < N < O < F
(D) Li < B < Be < C < O < N < F

Answer: (D) Li < B < Be < C < O < N < F · Key from source paper

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Q62 JEE Main 2023 · 10 Apr · Shift 1 Numerical

In the following reaction, the total number of oxygen atoms in X and Y is _____

$$\mathrm{Na_2O} + \mathrm{H_2O} \rightarrow 2\mathrm{X}$$
$$\mathrm{Cl_2O_7} + \mathrm{H_2O} \rightarrow 2\mathrm{Y}$$

Numerical value type: the answer is a number.

Answer: 5. · Key from source paper

Q63 JEE Main 2023 · 10 Apr · Shift 2 MCQ

Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R.
Assertion A : The energy required to form $\mathrm{Mg^{2+}}$ from Mg is much higher than that required to produce $\mathrm{Mg^{+}}$
Reason R: $\mathrm{Mg^{2+}}$ is small ion and carry more charge than $\mathrm{Mg^{+}}$
In the light of the above statements, choose the correct answer from the options given below.

(A) Both A and R are true but R is NOT the correct explanation of A
(B) A is true but R is false
(C) A is false but R is true
(D) Both A and R are true and R is the correct explanation of A

Answer: (D) Both A and R are true and R is the correct explanation of A · Key from source paper

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Q64 JEE Main 2023 · 10 Apr · Shift 2 MCQ

The correct order of metallic character is

(A) $K > Be > Ca$

(B) $Be > Ca > K$

(C) $Ca > K > Be$

(D) $K > Ca > Be$

Answer: (D) $K > Ca > Be$ · Key from source paper

Q65 JEE Main 2023 · 8 Apr · Shift 1 MCQ

The correct order of electronegativity for given elements is

(A) $P > Br > C > At$

(B) $Br > P > At > C$

(C) $Br > C > At > P$

(D) $C > P > At > Br$

Answer: (C) $Br > C > At > P$ · Key from source paper

Q66 JEE Main 2023 · 8 Apr · Shift 2 MCQ

Henry Moseley studied characteristic X-ray spectra of elements. The graph which represents his observation correctly is

Given v = Frequency of X-ray emitted

Z = Atomic number

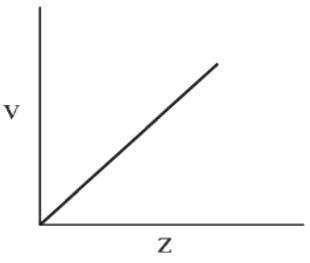
(see the figure above)

Q32. Henry Moseley studied characteristic X-ray spectra of elements. The graph which represents his observation correctly is

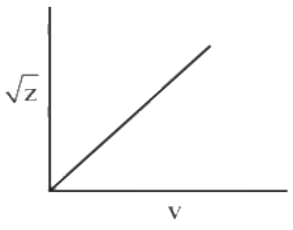
Given v = Frequency of X-ray emitted

Z = Atomic number

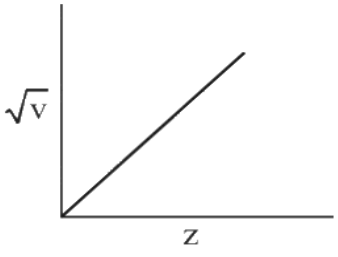
(1)



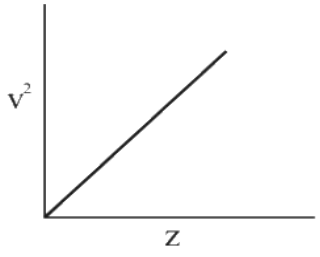
(2)



(3)



(4)



(A) *see figure*
(B) *see figure*
(C) *see figure*
(D) *see figure*

Answer: (C) · Key from source paper

Q67 JEE Main 2023 · 6 Apr · Shift 1 MCQ

The difference between electron gain enthalpies will be maximum between :

(A) Ne and F
(B) Ar and F
(C) Ne and Cl
(D) Ar and Cl

Answer: (C) Ne and Cl · Key from source paper

Q68 JEE Main 2023 · 1 Feb · Shift 1 MCQ

Given below are two statements:
Statement I: Chlorine can easily combine with oxygen to from oxides: and the product has a tendency to explode.
Statement II: Chemical reactivity of an element can be determined by its reaction with oxygen and halogens.
In the light of the above statements, choose the correct answer from the options given below

(A) Both the statements I and II are true
(B) Statement I is true but Statement II is false
(C) Statement I is false but Statement II is true
(D) Both the Statements I and II are false

Answer: (A) Both the statements I and II are true · Key from source paper

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Q69 JEE Main 2023 · 1 Feb · Shift 2 MCQ

For electron gain enthalpies of the elements denoted as $\Delta_{eg}H$, the incorrect option is :

(A) $\Delta_{eg}H(Cl) < \Delta_{eg}H(F)$
(B) $\Delta_{eg}H(Se) < \Delta_{eg}H(S)$
(C) $\Delta_{eg}H(I) < \Delta_{eg}H(At)$
(D) $\Delta_{eg}H(Te) < \Delta_{eg}H(Po)$

Answer: (B) $\Delta_{eg}H(Se) < \Delta_{eg}H(S)$ · Key from source paper

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Q70 JEE Main 2023 · 31 Jan · Shift 1 MCQ

The correct increasing order of the ionic radii is

(A) $Cl^- < Ca^{2+} < K^+ < S^{2-}$
(B) $K^+ < S^{2-} < Ca^{2+} < Cl^-$
(C) $S^{2-} < Cl^- < Ca^{2+} < K^+$
(D) $Ca^{2+} < K^+ < Cl^- < S^{2-}$

Answer: (D) $Ca^{2+} < K^+ < Cl^- < S^{2-}$ · Key from source paper

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Q71 JEE Main 2023 · 31 Jan · Shift 1 MCQ

The correct order of basicity of oxides of vanadium is

(A) $V_2O_3 > V_2O_4 > V_2O_5$
(B) $V_2O_3 > V_2O_5 > V_2O_4$
(C) $V_2O_5 > V_2O_4 > V_2O_3$
(D) $V_2O_4 > V_2O_3 > V_2O_5$

Answer: (A) $V_2O_3 > V_2O_4 > V_2O_5$ · Key from source paper

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Q72 JEE Main 2023 · 30 Jan · Shift 1 MCQ

Match List - I with List - II

LIST-I (Atomic number)
(A) 37
(B) 78
(C) 52
(D) 65

LIST-II (Block of periodic table)
I. p-block
II. d-block
III. f-block
IV. s-block

Choose the correct answer from the options given below:

(A) A - II, B - IV, C - I, D - III
(B) A - I, B - III, C - IV, D - II
(C) A - IV, B - III, C - II, D - I
(D) A - IV, B - II, C - I, D - III

Answer: (D) A - IV, B - II, C - I, D - III · Key from source paper

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Q73 JEE Main 2023 · 29 Jan · Shift 2 Numerical

Total number of acidic oxides among N_2O_3, NO_2, N_2O, Cl_2O_7, SO_2, CO, CaO, Na_2O and NO is _____ .

EdLoop JEE

Numerical value type: the answer is a number.

Answer: 4. · Key from source paper

Q74 JEE Main 2023 · 25 Jan · Shift 1 MCQ

Inert gases have positive electron gain enthalpy. Its correct order is

(A) Xe < Kr < Ne < He
(B) He < Ne < Kr < Xe
(C) He < Xe < Kr < Ne
(D) He < Kr < Xe < Ne

Answer: (C) He < Xe < Kr < Ne · Key from source paper

Q75 JEE Main 2023 · 25 Jan · Shift 2 MCQ

Which of the following represents the correct order of metallic character of the given elements?

(A) Si < Be < Mg < K
(B) Be < Si < Mg < K
(C) K < Mg < Be < Si
(D) Be < Si < K < Mg

Answer: (A) Si < Be < Mg < K · Key from source paper

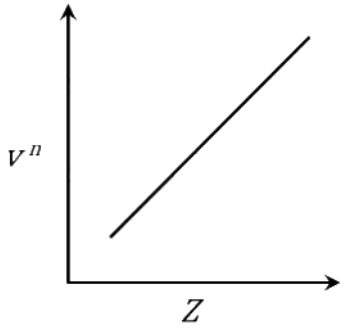
Q76 JEE Main 2023 · 24 Jan · Shift 1 MCQ

It is observed that characteristic X-ray spectra of elements show regularity. When frequency to the power 'n' i.e. ν^n of X-rays emitted is plotted against atomic number Z, the following graph is obtained.

(see the figure above)

The value of 'n' is

Q31. It is observed that characteristic X-ray spectra of elements show regularity. When frequency to the power 'n' i.e. ν^n of X-rays emitted is plotted against atomic number Z, the following graph is obtained.



The value of 'n' is

(1) 1
(2) 2
(3) $\frac{1}{2}$
(4) 3

(A) 1
(B) 2
(C) $\frac{1}{2}$
(D) 3

Answer: (C) $\frac{1}{2}$ · Key from source paper

Q77 JEE Main 2022 · 29 Jul · Shift 1 MCQ

The first ionization enthalpy of Na, Mg and Si, respectively, are: 496, 737 and 786 $\mathrm{kJ\ mol^{-1}}$. The first ionization enthalpy ($\mathrm{kJmol^{-1}}$) of Al is

(A) 487
(B) 768
(C) 577
(D) 856

Answer: (C) 577 · Key from source paper

Q78 JEE Main 2022 · 28 Jul · Shift 1 MCQ

In which of the following pairs, electron gain enthalpies of constituent elements are nearly the same or identical?
(A) Rb and Cs
(B) Na and K
(C) Ar and Kr
(D) I and At
Choose the correct answer from the options given below

(A) A & B only
(B) B & C only
(C) A & C only
(D) C & D only

Answer: (C) A & C only · Key from source paper

Q79 JEE Main 2022 · 28 Jul · Shift 2 MCQ

The correct decreasing order for metallic character is

(A) $\mathrm{Na > Mg > Be > Si > P}$
(B) $\mathrm{P > Si > Be > Mg > Na}$
(C) $\mathrm{Si > P > Be > Na > Mg}$
(D) $\mathrm{Be > Na > Mg > Si > P}$

Answer: (A) $\mathrm{Na > Mg > Be > Si > P}$ · Key from source paper

EdLoop JEE

Q80 JEE Main 2022 · 27 Jul · Shift 1 MCQ

The incorrect statement is

(A) The first ionization enthalpy of K is less than that of Na and Li

(B) Xe does not have the lowest first ionization enthalpy in its group

(C) The first ionization enthalpy of element with atomic number 37 is lower than that of the element with atomic number 38.

(D) The first ionization enthalpy of Ga is higher than that of the d-block element with atomic number 30.

Answer: (D) The first ionization enthalpy of Ga is higher than that of the d-block element with atomic number 30. · Key from source paper

Q81 JEE Main 2022 · 27 Jul · Shift 2 MCQ

Outermost electronic configurations of four elements A, B, C, D are given below:

(A) $3\ s^2$

(B) $3s^2 3p^1$

(C) $3\ s^2 3p^3$

(D) $3\ s^2 3p^4$

The correct order of first ionization enthalpy for them is

(A) A < B < C < D

(B) B < A < D < C

(C) B < D < A < C

(D) B < A < C < D

Answer: (B) B < A < D < C · Key from source paper

Q82 JEE Main 2022 · 26 Jul · Shift 1 MCQ

Given two statements below :

Statement I : In Cl_2 molecule the covalent radius is double of the atomic radius of chlorine.

Statement II : Radius of anionic species is always greater than their parent atomic radius.

Choose the most appropriate answer from options given below

(A) Both Statement I and Statement II are correct.

(B) Both Statement I and Statement II are incorrect.

(C) Statement I is correct but Statement II is incorrect.

(D) Statement I is incorrect but Statement II is correct.

Answer: (D) Statement I is incorrect but Statement II is correct. · Key from source paper

Q83 JEE Main 2022 · 25 Jul · Shift 1 MCQ

The IUPAC nomenclature of an element with electronic configuration $Rn5f^{14}6d^{1}7s^{2}$ is

(A) Unnilunium
(B) Unnilbium
(C) Unniltrium
(D) Unnilquadium

Answer: (C) Unniltrium · Key from source paper

Q84 JEE Main 2022 · 25 Jul · Shift 2 MCQ

The first ionization enthalpies of Be, B, N and O follow the order

(A) $\mathrm{B} < \mathrm{Be} < \mathrm{O} < \mathrm{N}$
(B) $\mathrm{O} < \mathrm{N} < \mathrm{B} < \mathrm{Be}$
(C) $\mathrm{Be} < \mathrm{B} < \mathrm{N} < \mathrm{O}$
(D) $\mathrm{B} < \mathrm{Be} < \mathrm{N} < \mathrm{O}$

Answer: (A) $\mathrm{B} < \mathrm{Be} < \mathrm{O} < \mathrm{N}$ · Key from source paper

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Q85 JEE Main 2022 · 25 Jul · Shift 2 MCQ

The total number of acidic oxides from the following list is:
$\mathrm{NO},\ \mathrm{N_2O},\ \mathrm{B_2O_3},\ \mathrm{N_2O_5},\ \mathrm{CO},\ \mathrm{SO_3},\ \mathrm{P_4O_{10}}$

(A) 5
(B) 4
(C) 3
(D) 6

Answer: (B) 4 · Key from source paper

Q86 JEE Main 2022 · 29 Jun · Shift 2 MCQ

Given below are two statements. One is labelled as Assertion A and the other is labelled as Reason R.
Assertion A : The first ionization enthalpy for oxygen is lower than that of nitrogen.
Reason R : The four electrons in 2p orbitals of oxygen experience more electron-electron repulsion.
In the light of the above statements, choose the correct answer from the options given below.

(A) Both A and R are correct and R is the correct explanation of A.
(B) Both A and R are correct but R is NOT the correct explanation of A.
(C) A is correct but R is not correct.
(D) A is not correct but R is correct

Answer: (A) Both A and R are correct and R is the correct explanation of A. · Key from source paper

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Q87 JEE Main 2022 · 28 Jun · Shift 1 MCQ

Element "E" belongs to the period 4 and group 16 of the periodic table. The valence shell electron configuration of the element, which is just above "E" in the group is

(A) $2s^2 2p^4$
(B) $3d^{10}, 4s^2, 4p^4$
(C) $3s^2 3p^4$
(D) $4d^{10}, 5s^2, 5p^4$

Answer: (C) $3s^2 3p^4$ · Key from source paper

Q88 JEE Main 2022 · 28 Jun · Shift 2 MCQ

Match List-I with List-II
List-I
(A) Cl_2O_7
(B) Na_2O
(C) Al_2O_3
(D) N_2O
List-II
(I) Amphoteric
(II) Basic
(III) Neutral
(IV) Acidic
Choose the correct answer from the options given below

(A) (A) – (IV), (B) – (III), (C) – (I), (D) – (II)
(B) (A) – (IV), (B) – (II), (C) – (I), (D) – (III)
(C) (A) – (II), (B) – (IV), (C) – (III), (D) – (I)
(D) (A) – (I), (B) – (II), (C) – (III), (D) – (IV)

Answer: (B) (A) – (IV), (B) – (II), (C) – (I), (D) – (III) · Key from source paper

Q89 JEE Main 2022 · 28 Jun · Shift 2 MCQ

Among the following, basic oxide is

(A) SO_3
(B) SiO_2
(C) CaO
(D) Al_2O_3

Answer: (C) CaO · Key from source paper

Q90 JEE Main 2022 · 27 Jun · Shift 1 MCQ

Given below are two statements : one is labelled as Assertion and the other is labelled as Reason.
Assertion: The ionic radii of O^{2-} and Mg^{2+} are same.
Reason: Both O^{2-} and Mg^{2+} are isoelectronic species.
In the light of the above statements, choose the correct answer from the options given below.

(A) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(B) Both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(C) Assertion is true but Reason is false.
(D) Assertion is false but Reason is true.

Answer: (D) Assertion is false but Reason is true. · Key from source paper

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Q91 JEE Main 2022 · 27 Jun · Shift 2 MCQ

The correct order of ionic size of $N^{3-}, Na^{+}, F^{-}, Mg^{2+}$ and O^{2-} is :

(A) $Mg^{2+} < Na^{+} < F^{-} < O^{2-} < N^{3-}$
(B) $N^{3-} < O^{2-} < F < Na^{+} < Mg^{2+}$
(C) $F^{-} < Na^{+} < O^{2-} < Mg^{2+} < N^{3-}$
(D) $Na^{+} < F^{-} < Mg^{2+} < O^{2-} < N^{3-}$

Answer: (A) $Mg^{2+} < Na^{+} < F^{-} < O^{2-} < N^{3-}$ · Key from source paper

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Q92 JEE Main 2022 · 26 Jun · Shift 2 MCQ

Which of the following is a metalloid?

(A) Sc
(B) Pb
(C) Bi
(D) Te

Answer: (D) Te · Key from source paper

Q93 JEE Main 2022 · 25 Jun · Shift 2 MCQ

What is the correct oder of electron gain enthalpy of Cl, F, Te, Po

(A) $F > Cl > Te > Po$
(B) $Cl > F > Te > Po$
(C) $Te > Po > Cl > F$
(D) $Po > Te > F > Cl$

Answer: (B) $Cl > F > Te > Po$ · Key from source paper

Q94 JEE Main 2022 · 24 Jun · Shift 1 MCQ

Given below are the oxides :
Na_2O, As_2O_3, N_2O, NO and Cl_2O_7 Number of amphoteric oxides is :

(A) 0
(B) 1
(C) 2
(D) 3

Answer: (B) 1 · Key from source paper

Q95 JEE Main 2021 · 31 Aug · Shift 1 MCQ

Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R).
Assertion (A) : Metallic character decreases and non-metallic character increases on moving from left to right in a period.
Reason (R): It is due to increase in ionisation enthalpy and decrease in electron gain enthalpy, when one moves from left to right in a period.
In the light of the above statements, choose the most appropriate answer from the options given below :

(A) (A) is false but (R) is true.
(B) Both (A) and (R) are correct and (R) is the correct explanation of (A)
(C) Both (A) and (R) are correct but (R) is not the correct explanation of (A).
(D) (A) is true but (R) is false.

Options (4) or (2) were accepted. More than one answer was accepted. · Key from source paper

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Q96 JEE Main 2021 · 27 Aug · Shift 2 MCQ

The correct order of ionic radii for the ions, P^{3-}, S^{2-}, Ca^{2+}, K^{+}, Cl^{-} is :

(A) $P^{3-} > S^{2-} > Cl^{-} > K^{+} > Ca^{2+}$
(B) $P^{3-} > S^{2-} > Cl^{-} > Ca^{2+} > K^{+}$
(C) $Cl^{-} > S^{2-} > P^{3-} > Ca^{2+} > K^{+}$
(D) $K^{+} > Ca^{2+} > P^{3-} > S^{2-} > Cl^{-}$

Answer: (A) $P^{3-} > S^{2-} > Cl^{-} > K^{+} > Ca^{2+}$ · Key from source paper

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Q97 JEE Main 2021 · 27 Jul · Shift 1 MCQ

Match List $-$ I with List $-$ II :
List $-$I: (a) NaOH; (b) $Be(OH)_2$; (c) $Ca(OH)_2$; (d) $B(OH)_3$; (e) $Al(OH)_3$
List$-$ II: (i) Acidic; (ii) Basic; (iii) Amphoteric
Choose the most appropriate answer from the options given below

(A) (a) – (ii), (b) – (ii), (c) – (iii), (d) – (ii), (e) –
(B) (a) – (ii), (b) – (iii), (c) – (ii), (d) – (i), (e) – (iii)
(C) (a) – (ii), (b) – (ii), (c) – (iii), (d) – (i), (e) –
(D) (a) – (ii), (b) – (i), (c) – (ii), (d) – (iii), (e) – (iii)

Answer: (B) (a) – (ii), (b) – (iii), (c) – (ii), (d) – (i), (e) – (iii) · Key from source paper

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Q98 JEE Main 2021 · 27 Jul · Shift 2 MCQ

The CORRECT order of first ionisation enthalpy is:

(A) $\mathrm{Mg} < \mathrm{S} < \mathrm{Al} < \mathrm{P}$
(B) $\mathrm{Mg} < \mathrm{Al} < \mathrm{S} < \mathrm{P}$
(C) $\mathrm{Al} < \mathrm{Mg} < \mathrm{S} < \mathrm{P}$
(D) $\mathrm{Mg} < \mathrm{Al} < \mathrm{P} < \mathrm{S}$

Answer: (C) $\mathrm{Al} < \mathrm{Mg} < \mathrm{S} < \mathrm{P}$ · Key from source paper

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Q99 JEE Main 2021 · 25 Jul · Shift 1 MCQ

The ionic radii of K^{+}, Na^{+}, Al^{3+} and Mg^{2+} are in the order :

(A) $\mathrm{Na}^{+} < \mathrm{K}^{+} < \mathrm{Mg}^{2+} < \mathrm{Al}^{3+}$
(B) $\mathrm{Al}^{3+} < \mathrm{Mg}^{2+} < \mathrm{K}^{+} < \mathrm{Na}^{+}$
(C) $\mathrm{Al}^{3+} < \mathrm{Mg}^{2+} < \mathrm{Na}^{+} < \mathrm{K}^{+}$
(D) $\mathrm{K}^{+} < \mathrm{Al}^{3+} < \mathrm{Mg}^{2+} < \mathrm{Na}^{+}$

Answer: (C) $\mathrm{Al}^{3+} < \mathrm{Mg}^{2+} < \mathrm{Na}^{+} < \mathrm{K}^{+}$ · Key from source paper

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Q100 JEE Main 2021 · 25 Jul · Shift 2 MCQ

The ionic radii of F^{-} and O^{2-} respectively are $1.33\ \mathrm{A}$ and $1.4\mathrm{A}$, while the covalent radius of N is $0.74\mathrm{A}$

The correct statement for the ionic radius of N^{3-} from the following is :

(A) It is smaller than F^{-} and N
(B) It is bigger than O^{2-} and F^{-}
(C) It is bigger than F^{-} and N, but smaller than of O^{2-}
(D) It is smaller than O^{2-} and F^{-}, but bigger than of N

Answer: (B) It is bigger than O^{2-} and F^{-} · Key from source paper

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Q101 JEE Main 2021 · 22 Jul · Shift 1 MCQ

Which one of the following statements for D.I. Mendeleeff, is incorrect ?

(A) He authored the textbook - Principles of Chemistry.
(B) At the time, he proposed Periodic Table of elements structure of atom was known.
(C) Element with atomic number 101 is named after him.
(D) He invented accurate barometer.

Answer: (B) At the time, he proposed Periodic Table of elements structure of atom was known. · Key from source paper

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Q102 JEE Main 2021 · 20 Jul · Shift 1 MCQ

The set in which compounds have different nature is:

(A) $B(OH)_3$ and H_3PO_3
(B) $B(OH)_3$ and $Al(OH)_3$
(C) $NaOH$ and $Ca(OH)_2$
(D) $Be(OH)_2$ and $Al(OH)_3$

Answer: (B) $B(OH)_3$ **and** $Al(OH)_3$ · Key from source paper

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Q103 JEE Main 2021 · 20 Jul · Shift 2 MCQ

Outermost electronic configuration of a group 13 element, E, is $4\,s^2, 4p^1$. The electronic configuration of an element of p-block period-five placed diagonally to element, E is:

(A) $[Kr]\,3\,d^{10}4\,s^2 4p^2$
(B) $[Ar]\,3\,d^{10}4\,s^2 4p^2$
(C) $[Xe]\,5\,d^{10}6\,s^2 6p^2$
(D) $[Kr]\,4\,d^{10}5\,s^2 5p^2$

Answer: (D) $[Kr]\,4\,d^{10}5\,s^2 5p^2$ · Key from source paper

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Q104 JEE Main 2021 · 18 Mar · Shift 1 MCQ

The ionic radius of Na^+ ions is $1.02\,Å$. The ionic radii (in Å) of Mg^{2+} and Al^{3+}, respectively, are

(A) 1.05 and 0.99
(B) 0.72 and 0.54
(C) 0.85 and 0.99
(D) 0.68 and 0.72

Answer: (B) 0.72 and 0.54 · Key from source paper

Q105 JEE Main 2021 · 18 Mar · Shift 2 MCQ

The first ionization energy of magnesium is smaller, as compared to that of elements X and Y, but higher than that of Z. The elements X, Y and Z, respectively, are :

(A) chlorine, lithium and sodium
(B) argon, lithium and sodium
(C) argon, chlorine and sodium
(D) neon, sodium and chlorine

Answer: (C) argon, chlorine and sodium · Key from source paper

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Q106 JEE Main 2021 · 17 Mar · Shift 1 MCQ

The absolute value of the electron gain enthalpy of halogens satisfies:

(A) $\mathrm{I} > \mathrm{Br} > \mathrm{Cl} > \mathrm{F}$
(B) $\mathrm{Cl} > \mathrm{Br} > \mathrm{F} > \mathrm{I}$
(C) $\mathrm{Cl} > \mathrm{F} > \mathrm{Br} > \mathrm{I}$
(D) $\mathrm{F} > \mathrm{Cl} > \mathrm{Br} > \mathrm{I}$

Answer: (C) $\mathrm{Cl} > \mathrm{F} > \mathrm{Br} > \mathrm{I}$ · Key from source paper

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Q107 JEE Main 2021 · 17 Mar · Shift 2 MCQ

The set of elements that differ in mutual relationship from those of the other sets is:

(A) Li – Mg
(B) B – Si
(C) Be – Al
(D) Li – Na

Answer: (D) Li – Na · Key from source paper

Q108 JEE Main 2021 · 16 Mar · Shift 2 MCQ

Identify the elements X and Y using the ionization energy values given below :

	Ionization energy (kJ / mol) 1st	Ionization energy (kJ / mol) 2nd
X	495	4563
Y	731	1450

(A) X = Na; Y = Mg
(B) X = Mg; Y = F
(C) X = Mg; Y = Na
(D) X = F; Y = Mg

Answer: (A) X = Na; Y = Mg · Key from source paper

Q109 JEE Main 2021 · 16 Mar · Shift 2 MCQ

The characteristics of elements X, Y and Z with atomic numbers, respectively, 33, 53 and 83 are:

(A) X and Y are metalloids and Z is a metal
(B) X is a metalloid, Y is a non-metal and Z is a metal.
(C) X, Y and Z are metals.
(D) Xand Z are non-metals and Y is a metalloid

Answer: (B) X is a metalloid, Y is a non-metal and Z is a metal. · Key from source paper

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Q110 JEE Main 2021 · 26 Feb · Shift 1 MCQ

Match List-I with List-II.

List-I (Electronic configuration of elements) List-II ($\Delta_i H$ in $\mathrm{kJ\ mol^{-1}}$)

(a) $1s^2 2s^2$ (p) 801

(b) $1s^2 2s^2 2p^4$ (q) 899

(c) $1s^2 2s^2 2p^3$ (r) 1314

(d) $1s^2 2s^2 2p^1$ (s) 1402

Choose the most appropriate answer from the options given below:

(A) (a) → (q), (b) → (r), (c) → (s), (d) → (p)
(B) (a) → (p), (b) → (r), (c) → (s), (d) → (q)
(C) (a) → (p), (b) → (s), (c) → (r), (d) → (q)
(D) (a) → (s), (b) → (p), (c) → (q), (d) → (r)

Answer: (A) (a) → (q), (b) → (r), (c) → (s), (d) → (p) · Key from source paper

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Q111 JEE Main 2021 · 26 Feb · Shift 2 MCQ

The correct order of electron gain enthalpy is:

(A) $\mathrm{S > O > Se > Te}$
(B) $\mathrm{O > S > Se > Te}$
(C) $\mathrm{S > Se > Te > O}$
(D) $\mathrm{Te > Se > S > O}$

Answer: (C) $\mathrm{S > Se > Te > O}$ · Key from source paper

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Q112 JEE Main 2021 · 26 Feb · Shift 2 MCQ

Which pair of oxides is acidic in nature?

(A) $\mathrm{B_2O_3,\ CaO}$
(B) $\mathrm{N_2O,\ BaO}$
(C) $\mathrm{CaO,\ SiO_2}$
(D) $\mathrm{B_2O_3,\ SiO_2}$

Answer: (D) $\mathrm{B_2O_3,\ SiO_2}$ · Key from source paper

EdLoop JEE

Q113 JEE Main 2021 · 24 Feb · Shift 1 MCQ

Consider the elements Mg, Al, S, P and Si, the correct increasing order of their first ionisation enthalpy is:

(A) $\mathrm{Al} < \mathrm{Mg} < \mathrm{Si} < \mathrm{S} < \mathrm{P}$
(B) $\mathrm{Al} < \mathrm{Mg} < \mathrm{S} < \mathrm{Si} < \mathrm{P}$
(C) $\mathrm{Mg} < \mathrm{Al} < \mathrm{Si} < \mathrm{P} < \mathrm{S}$
(D) $\mathrm{Mg} < \mathrm{Al} < \mathrm{Si} < \mathrm{S} < \mathrm{P}$

Answer: (A) $\mathrm{Al} < \mathrm{Mg} < \mathrm{Si} < \mathrm{S} < \mathrm{P}$ · Key from source paper

Q114 JEE Main 2021 · 24 Feb · Shift 1 Numerical

Number of amphoteric compounds among the following is
(A) BeO
(B) BaO
(C) $\mathrm{BeOH_2}$
(D) $\mathrm{Sr\ OH_2}$

Numerical value type: the answer is a number.

Answer: 2. · Key from source paper

Q115 JEE Main 2020 · 6 Sep · Shift 1 MCQ

The set that contains atomic numbers of only transition elements, is :

(A) 37,42,50,64
(B) 21,25,42,72
(C) 9,17,34,38
(D) 21,32,53,64

Answer: (B) 21,25,42,72 · Key from source paper

Q116 JEE Main 2020 · 6 Sep · Shift 2 Numerical

The atomic number of Unnilunium is _____.

Numerical value type: the answer is a number.

Answer: 101. · Key from source paper

Q117 JEE Main 2020 · 5 Sep · Shift 1 MCQ

In the sixth period, the orbitals that are filled are :

(A) 6s, 4f, 5d, 6p
(B) 6s, 5d, 5f, 6p
(C) 6s, 5f, 6d, 6p
(D) 6s, 6p, 6d, 6f

Answer: (A) 6s, 4f, 5d, 6p · Key from source paper

Q118 JEE Main 2020 · 5 Sep · Shift 2 MCQ

The correct order of the ionic radii of O^{2-}, N^{3-}, F^{-}, Mg^{2+}, Na^{+} and Al^{3+} is :

(A) $N^{3-} < O^{2-} < F^{-} < Na^{+} < Mg^{2+} < Al^{3+}$
(B) $Al^{3+} < Na^{+} < Mg^{2+} < O^{2-} < F^{-} < N^{3-}$
(C) $Al^{3+} < Mg^{2+} < Na^{+} < F^{-} < O^{2-} < N^{3-}$
(D) $N^{3-} < F^{-} < O^{2-} < Mg^{2+} < Na^{+} < Al^{3+}$

Answer: (C) $Al^{3+} < Mg^{2+} < Na^{+} < F^{-} < O^{2-} < N^{3-}$ · Key from source paper

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Q119 JEE Main 2020 · 4 Sep · Shift 1 MCQ

The elements with atomic numbers 101 and 104 belong to, respectively:

(A) Group 11 and Group 4
(B) Actinoids and Group 6
(C) Actinoids and Group 4
(D) Group 6 and Actinoids

Answer: (C) Actinoids and Group 4 · Key from source paper

Q120 JEE Main 2020 · 4 Sep · Shift 1 MCQ

The ionic radii of O^{2-}, F^{-}, Na^{+} and Mg^{2+} are in the order:

(A) $F^{-} > O^{2-} > Na^{+} > Mg^{2+}$
(B) $O^{2-} > F^{-} > Na^{+} > Mg^{2+}$
(C) $Mg^{2+} > Na^{+} > F^{-} > O^{2-}$
(D) $O^{2-} > F^{-} > Mg^{2+} > Na^{+}$

Answer: (B) $O^{2-} > F^{-} > Na^{+} > Mg^{2+}$ · Key from source paper

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Q121 JEE Main 2020 · 4 Sep · Shift 2 MCQ

The process that is NOT endothermic in nature is :

(A) $\mathrm{Ar_{(g)} + e^- \rightarrow Ar^-_{(g)}}$

(B) $\mathrm{H_{(g)} + e^- \rightarrow H^-_{(g)}}$

(C) $\mathrm{O^-_{(g)} + e^- \rightarrow O^{2-}_{(g)}}$

(D) $\mathrm{Na_{(g)} \rightarrow Na^+_{(g)} + e^-}$

Answer: (B) $\mathrm{H_{(g)} + e^- \rightarrow H^-_{(g)}}$ · Key from source paper

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Q122 JEE Main 2020 · 3 Sep · Shift 1 MCQ

The atomic number of the element unnilennium is :

(A) 109

(B) 102

(C) 108

(D) 119

Answer: (A) 109 · Key from source paper

Q123 JEE Main 2020 · 3 Sep · Shift 2 MCQ

The five successive ionization enthalpies of an element are 800, 2427, 3658, 35024 32824 $\mathrm{kJ\ mol^{-1}}$. The number of valence electrons in the element is:

(A) 5

(B) 4

(C) 3

(D) 2

Answer: (C) 3 · Key from source paper

Q124 JEE Main 2020 · 3 Sep · Shift 2 MCQ

Among the statement (I – IV), the correct ones are:
(I) Be has smaller atomic radius compared to Mg.
(II) Be has higher ionization enthalpy than Al.
(III) Charge/radius ratio of Be is greater than that of Al.
(IV) Both Be and Al form mainly covalent compounds

(A) (I), (II) and (IV)

(B) (I), (III) and (IV)

(C) (II), (III) and (IV)

(D) (I), (II) and (III)

Answer: (A) (I), (II) and (IV) · Key from source paper

Q125 JEE Main 2020 · 2 Sep · Shift 1 MCQ

In general, the property (magnitudes only) that shows an opposite trend in comparison to other properties across a period is :

(A) Ionization enthalpy
(B) Electronegativity
(C) Electron gain enthalpy
(D) Atomic radius

Answer: (D) Atomic radius · Key from source paper

Q126 JEE Main 2020 · 2 Sep · Shift 2 MCQ

Three elements X, Y and Z are in the 3rd period of the periodic table. The oxides ofX, Y and Z, respectively, are basic, amphoteric and acidic. The correct order of the atomic numbers of X, Y and Z is:

(A) Z < Y < X
(B) X < Y < Z
(C) X < Z < Y
(D) Y < X < Z

Answer: (B) X < Y < Z · Key from source paper

Q127 JEE Main 2020 · 9 Jan · Shift 1 MCQ

B has a smaller first ionization enthalpy than Be. Consider the following statement:
(I) it is easier to remove 2p electron than2s electron
(II) 2p electron of B is more shielded from the nucleus by the inner core of electrons than the 2s electrons of Be
(III) 2s electron has more penetration power than 2p electron
(IV) atomic radius of B is more than Be
(atomic number B : 5, Be = 4)
The correct statements are.

(A) (I), (II) and (IV)
(B) (II), (III) and (IV)
(C) (I), (II) and (III)
(D) (I), (III) and (IV)

Answer: (C) (I), (II) and (III) · Key from source paper

Q128 JEE Main 2020 · 9 Jan · Shift 1 MCQ

The acidic, basic and amphoteric oxides, respectively, are

(A) Na_2O, SO_3, Al_2O_3
(B) Cl_2O, CaO, P_4O_{10}
(C) N_2O_3, Li_2O, Al_2O_3
(D) MgO, Cl_2O, Al_2O_3

Answer: (C) N_2O_3, Li_2O, Al_2O_3 · Key from source paper

Q129 JEE Main 2020 · 9 Jan · Shift 2 MCQ

The first and second ionisation enthalpies of a metal are 496 and $4560\ kJ\ mol^{-1}$, respectively. How many moles of HCl and H_2SO_4, respectively, will be needed to react completely with 1 mole of the metal hydroxide?

(A) 1 and 1
(B) 2 and 0.5
(C) 1 and 2
(D) 1 and 0.5

Answer: (D) 1 and 0.5 · Key from source paper

Q130 JEE Main 2020 · 8 Jan · Shift 1 MCQ

The first ionization energy (in kJ/mol) of Na, Mg, Al and Si respectively are:

(A) $496, 737, 577, 786$
(B) $496, 577, 737, 786$
(C) $786, 737, 577, 496$
(D) $496, 577, 786, 737$

Answer: (A) $496, 737, 577, 786$ · Key from source paper

Q131 JEE Main 2020 · 8 Jan · Shift 2 MCQ

The increasing order of the atomic radii of the following elements is:
$(a) C$
$(b) O$
$(c) F$
$(d) Cl$
$(e) Br$

(A) $(b) < (c) < (d) < (a) < (e)$
(B) $(d) < (c) < (b) < (a) < (e)$
(C) $(c) < (b) < (a) < (d) < (e)$
(D) $(a) < (b) < (c) < (d) < (e)$

Answer: (C) $(c) < (b) < (a) < (d) < (e)$ · Key from source paper

Q132 JEE Main 2020 · 7 Jan · Shift 1 MCQ

The electron gain enthalpy (in $\frac{\text{kJ}}{\text{mol}}$) of fluorine, chlorine, bromine and iodine, respectively, are

(A) $-296, -325, -333$ and -349

(B) $-349, -333, -325$ and -296

(C) $-333, -349, -325$ and -296

(D) $-333, -325, -349$ and -296

Answer: (C) $-333, -349, -325$ and -296 · Key from source paper

Q133 JEE Main 2020 · 7 Jan · Shift 2 MCQ

Within each pair of elements F and Cl, S and Se, and Li and Na, respectively, the elements that release more energy upon an electron gain are

(A) Cl, Se and Na

(B) Cl, S and Li

(C) F, S and Li

(D) F, Se and Na

Answer: (B) Cl, S and Li · Key from source paper

Q134 JEE Main 2019 · 12 Apr · Shift 1 MCQ

The group number, number of valence electrons, and valency of an element with atomic number 15, respectively, are:

(A) 15,6 and 2

(B) 16,6 and 3

(C) 16,5 and 2

(D) 15,5 and 3

Answer: (D) 15,5 and 3 · Key from source paper

Q135 JEE Main 2019 · 12 Apr · Shift 1 MCQ

The metal that gives hydrogen gas upon treatment with both the acid as well as the base is

(A) Zinc

(B) Magnesium

(C) Iron

(D) Mercury

Answer: (A) Zinc · Key from source paper

Q136 JEE Main 2019 · 12 Apr · Shift 2 MCQ

In comparison to boron, berylium has:

(A) greater nuclear charge and lesser first ionisation enthalpy
(B) lesser nuclear charge and greater first ionisation enthalpy
(C) lesser nuclear charge and lesser first ionisation enthalpy.
(D) greater nuclear charge and greater first ionisation enthalpy.

Answer: (B) lesser nuclear charge and greater first ionisation enthalpy · Key from source paper

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Q137 JEE Main 2019 · 9 Apr · Shift 1 MCQ

The element having the greatest difference between its first and second ionization energies, is

(A) Ba
(B) K
(C) Ca
(D) Sc

Answer: (B) K · Key from source paper

Q138 JEE Main 2019 · 8 Apr · Shift 1 MCQ

The size of the iso-electronic species Cl^-, Ar and Ca^{2+} is affected by:

(A) nuclear charge
(B) azimuthal quantum number of valence shell
(C) electron -electron interaction in the outer orbitals
(D) Principal quantum number of valence shell

Answer: (A) nuclear charge · Key from source paper

Q139 JEE Main 2019 · 8 Apr · Shift 2 MCQ

The IUPAC symbol for the element with atomic number 119 would be:

(A) Unh
(B) Uun
(C) Une
(D) Uue

Answer: (D) Uue · Key from source paper

Q140 JEE Main 2019 · 12 Jan · Shift 1 MCQ

The element with Z = 120 (not yet discovered) will be a/an

(A) transition metal.
(B) alkaline earth metal.
(C) alkali metal.
(D) inner-transition metal.

Answer: (B) alkaline earth metal. · Key from source paper

Q141 JEE Main 2019 · 11 Jan · Shift 1 MCQ

The correct order of the atomic radii of C, Cs, Al, and S is:

(A) C < S < Al < Cs
(B) S < C < Cs < Al
(C) S < C < Al < Cs
(D) C < S < Cs < Al

Answer: (A) C < S < Al < Cs · Key from source paper

Q142 JEE Main 2019 · 11 Jan · Shift 2 MCQ

The correct option with respect to the Pauling electronegativity values of the elements is:

(A) Te > Se
(B) Ga < Ge
(C) Si < Al
(D) P > S

Answer: (B) Ga < Ge · Key from source paper

Q143 JEE Main 2019 · 10 Jan · Shift 1 MCQ

The electronegativity of aluminum is similar to:

(A) Beryllium
(B) Boron
(C) Carbon
(D) Lithium

Answer: (A) Beryllium · Key from source paper

Q144 JEE Main 2019 · 9 Jan · Shift 1 MCQ

In general, the properties that decrease and increase down a group in the periodic table, respectively, are :

(A) Atomic radius and electronegativity
(B) Electronegativity and atomic radius
(C) Electronegativity and electron gain enthalpy
(D) Electron gain enthalpy and electronegativity

Answer: (B) Electronegativity and atomic radius · Key from source paper

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Q145 JEE Main 2019 · 9 Jan · Shift 2 MCQ

When the first electron gain enthalpy (ΔH_{eg}) of oxygen is $-141\ kJ/mol$, its second electron gain enthalpy is:

(A) A positive value
(B) Almost the same as that of the first
(C) Negative, but less negative than the first
(D) A more negative value than the first

Answer: (A) A positive value · Key from source paper

Q146 JEE Main 2018 · 15 Apr · Shift 1 MCQ

For Na^+, Mg^{2+}, F^- and O^{2-}; the correct order of increasing Ionic radii is :

(A) $O^{2-} < F^- < Na^+ < Mg^{2+}$
(B) $Na^+ < Mg^{2+} < F^- < O^{2-}$
(C) $Mg^{2+} < Na^+ < F^- < O^{2-}$
(D) $Mg^{2+} < O^{2-} < Na^+ < F^-$

Answer: (C) $Mg^{2+} < Na^+ < F^- < O^{2-}$ · Key from source paper

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Q147 JEE Main 2018 · 15 Apr · Shift 2 MCQ

The correct order of electron affinity is:

(A) $O > F > Cl$
(B) $F > O > Cl$
(C) $F > Cl > O$
(D) $Cl > F > O$

Answer: (D) $Cl > F > O$ · Key from source paper

Q148 JEE Main 2017 · 9 Apr · Online MCQ

The electronic configuration with the highest ionization enthalpy is:

(A) $[\mathrm{Ar}]\ 3d^{10}\ 4s^2\ 4p^3$
(B) $[\mathrm{Ne}]\ 3s^2\ 3p^1$
(C) $[\mathrm{Ne}]\ 3s^2\ 3p^3$
(D) $[\mathrm{Ne}]\ 3s^2\ 3p^2$

Answer: (C) $[\mathrm{Ne}]\ 3s^2\ 3p^3$ · Key from source paper

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Q149 JEE Main 2017 · 8 Apr · Online MCQ

Consider the following ionization enthalpies of two elements 'A' and 'B'.
Element | Ionization enthalpy (kJ / mol): 1st | 2nd | 3rd
A | 899 | 1757 | 14847
B | 737 | 1450 | 7731
Which of the following statements is correct?

(A) Both 'A' and 'B' belong to group-1 where 'A' comes below 'B'.
(B) Both 'A' and 'B' belong to group-2 where 'A' comes below 'B'.
(C) Both 'A' and 'B' belong to group-1 where 'B' comes below 'A'.
(D) Both 'A' and 'B' belong to group-2 where 'B' comes below 'A'.

Answer: (D) Both 'A' and 'B' belong to group-2 where 'B' comes below 'A'. · Key from source paper

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Q150 JEE Main 2017 · 2 Apr · Offline MCQ

In the following reactions, ZnO is respectively acting as a/an,
(i) $\mathrm{ZnO} + \mathrm{Na_2O} \rightarrow \mathrm{Na_2ZnO_2}$
(ii) $\mathrm{ZnO} + \mathrm{CO_2} \rightarrow \mathrm{ZnCO_3}$

(A) base and base.
(B) acid and acid.
(C) acid and base.
(D) base and acid.

Answer: (C) acid and base. · Key from source paper

Q151 JEE Main 2016 · 10 Apr · Online MCQ

The following statements concern elements in the periodic table. Which of the following is true?

(A) For group 15 elements, the stability of $+5$ oxidation state increases down the group.
(B) Elements of group 16 have lower ionization enthalpy values compared to those of group 15 in the corresponding periods.
(C) The group 13 elements are all metals.
(D) All the elements in group 17 are gases.

Answer: (B) Elements of group 16 have lower ionization enthalpy values compared to those of group 15 in the corresponding periods. · Key from source paper

EdLoop JEE

Q152 JEE Main 2016 · 3 Apr · Offline MCQ

Which of the following atoms has the highest first ionization energy?

(A) K
(B) Sc
(C) Rb
(D) Na

Answer: (B) Sc · Key from source paper

Q153 JEE Main 2015 · 11 Apr · Online MCQ

An element X shows +3, oxidation state in its compounds. Out of the four compounds given below, choose the incorrect formula for the element X.

(A) X_2O_3
(B) $X_2(SO_4)_3$
(C) XPO_4
(D) X_2Cl_3

Answer: (D) X_2Cl_3 · Key from source paper

Q154 JEE Main 2015 · 10 Apr · Online MCQ

In the long form of the periodic table, the valence shell electronic configuration of $5s^2 5p^4$ corresponds to the element present in:

(A) Group 16 and period 5
(B) Group 17 and period 5
(C) Group 16 and period 6
(D) Group 17 and period 6

Answer: (A) Group 16 and period 5 · Key from source paper

Q155 JEE Main 2015 · 4 Apr · Offline MCQ

The ionic radii (in Å) of N^{3-}, O^{2-} and F^- are respectively:

(A) $1.71,\ 1.36$ and 1.40
(B) $1.36,\ 1.40$ and 1.71
(C) $1.36,\ 1.71$ and 1.40
(D) $1.71,\ 1.40$ and 1.36

Answer: (D) $1.71,\ 1.40$ **and** 1.36 · Key from source paper

Q156 JEE Main 2014 · 19 Apr · Online MCQ

Which one of the following has largest ionic radius ?

(A) F^-
(B) B^{3+}
(C) O^{2-}
(D) Li^+

Answer: (C) O^{2-} · Key from source paper

Q157 JEE Main 2014 · 12 Apr · Online MCQ

Similarity in chemical properties of the atoms of elements in a group of the Periodic table is most closely related to:

(A) atomic numbers
(B) atomic masses
(C) number of principal energy levels
(D) number of valence electrons

Answer: (D) number of valence electrons · Checked by our team

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Q158 JEE Main 2014 · 12 Apr · Online MCQ

Which of the following arrangements represents the increasing order (smallest to largest) of ionic radii of the given species $O^{2-}, S^{2-}, N^{3-}, P^{3-}$?

(A) $O^{2-} < N^{3-} < S^{2-} < P^{3-}$
(B) $O^{2-} < P^{3-} < N^{3-} < S^{2-}$
(C) $N^3 < O^{2-} < P^{3-} < S^{2-}$
(D) $N^{3-} < S^{2-} < O^{2-} < P^{3-}$

Answer: (A) $O^{2-} < N^{3-} < S^{2-} < P^{3-}$ · Key from source paper

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Q159 JEE Main 2014 · 11 Apr · Online MCQ

Which of the following series correctly represents relations between the elements from X to Y ? $X \rightarrow Y$

(A) ${}_3Li \rightarrow {}_{19}K$ Ionization enthalpy increases
(B) ${}_9F \rightarrow {}_{35}Br$ Electron gain enthalpy (negative sign) increases
(C) ${}_6C \rightarrow {}_{32}Ge$ Atomic radii increases
(D) ${}_{18}Ar \rightarrow {}_{54}Xe$ Noble character increases

Answer: (C) ${}_6C \rightarrow {}_{32}Ge$ **Atomic radii increases** · Key from source paper

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Q160 JEE Main 2014 · 9 Apr · Online MCQ

In the following sets of reactants which two sets best exhibit the amphoteric character of $Al_2O_3 \cdot xH_2O$?
Set I $Al_2O_3 \cdot xH_2O_{(s)} + OH^-_{(aq)}$

Set II $Al_2O_3x \cdot H_2O_{(s)} + H_2O_{(l)}$
Set III $Al_2O_3x \cdot H_2O_{(s)} + H^+_{(aq)}$
Set IV $Al_2O_3 \cdot xH_2O_{(s)} + NH_{3(aq)}$

(A) 2 and 4
(B) 1 and 2
(C) 1 and 3
(D) 3 and 4

Answer: (C) 1 and 3 · Key from source paper

Q161 JEE Main 2013 · 23 Apr · Online MCQ

Which is the correct order of second ionization potential of C, N, O and F in the following ?

(A) O > N > F > C
(B) O > F > N > C
(C) F > O > N > C
(D) C > N > O > F

Answer: (B) O > F > N > C · Key from source paper

Q162 JEE Main 2013 · 22 Apr · Online MCQ

The order of increasing sizes of atomic radii among the elements O, S, Se and As is :

(A) As < S < O < Se
(B) Se < S < As < O
(C) O < S < As < Se
(D) O < S < Se < As

Answer: (D) O < S < Se < As · Checked by our team

Q163 JEE Main 2013 · 9 Apr · Online MCQ

Electron gain enthalpy with negative sign of fluorine is less than that of chlorine due to :

(A) High ionization enthalpy of fluorine
(B) Smaller size of chlorine atom
(C) Smaller size of fluorine atom
(D) Bigger size of $2p$ orbital of fluorine

Answer: (C) Smaller size of fluorine atom · Key from source paper

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Q164 JEE Main 2013 · 7 Apr · Offline MCQ

The first ionisation potential of Na is 5.1 eV. The value of electron gain enthalpy of Na^+ will be :

(A) -10.2 eV
(B) +2.55 eV
(C) -2.55 eV
(D) -5.1 eV

Answer: (D) -5.1 eV · Key from source paper

Q165 JEE Main 2013 · 7 Apr · Offline MCQ

Which of the following represents the correct order of increasing first ionization enthalpy for Ca, Ba, S, Se and Ar ?

(A) Ba < Ca < Se < S < Ar
(B) Ca < Ba < S < Se < Ar
(C) Ca < S < Ba < Se < Ar
(D) S < Se < Ca < Ba < Ar

Answer: (A) Ba < Ca < Se < S < Ar · Key from source paper

Q166 AIEEE 2012 · 26 May · Online MCQ

Which of the following presents the correct order of second ionization enthalpies of C, N, O and F ?

(A) F > O > N > C
(B) O > N > F > C
(C) C > N > O > F
(D) O > F > N > C

Answer: (D) O > F > N > C · Key from source paper

Q167 AIEEE 2012 · 12 May · Online MCQ

Which among the following elements has the highest first ionization enthalpy?

(A) Nitrogen
(B) Boron
(C) Carbon
(D) Oxygen

Answer: (A) Nitrogen · Key from source paper

Q168 AIEEE 2012 · 7 May · Online MCQ

The electron affinity of chlorine is 3.7eV.1 gram of chlorine is completely converted to Cl^- ion in a gaseous state. $(1eV = 23.06 kcal mol^{-1})$. Energy released in the process is

(A) 4.8kcal
(B) 7.2kcal
(C) 8.2kcal
(D) 2.4kcal

Answer: (D) 2.4kcal · Key from source paper

Q169 AIEEE 2012 · Offline MCQ

The increasing order of the ionic radii of the given isoelectronic species is :

(A) $Cl^-, Ca^{2+}, K^+, S^{2-}$
(B) $S^{2-}, Cl^-, Ca^{2+}, K^+$
(C) $Ca^{2+}, K^+, Cl^-, S^{2-}$
(D) $K^+, S^{2-}, Ca^{2+}, Cl^-$

Answer: (C) $Ca^{2+}, K^+, Cl^-, S^{2-}$ · Key from source paper

Q170 AIEEE 2011 MCQ

Which one of the following order represents the correct sequence of the increasing basic nature of the given oxides ?

(A) $MgO < K_2O < Al_2O_3 < Na_2O$
(B) $Na_2O < K_2O < MgO < Al_2O_3$
(C) $K_2O < Na_2O < Al_2O_3 < MgO$
(D) $Al_2O_3 < MgO < Na_2O < K_2O$

Answer: (D) $Al_2O_3 < MgO < Na_2O < K_2O$ · Key from source paper

Q171 AIEEE 2010 MCQ

The correct sequence which shows decreasing order of the ionic radii of the elements is

(A) $Al^{3+} > Mg^{2+} > Na^+ > F^- > O^{2-}$
(B) $Na^+ > Mg^{2+} > Al^{3+} > O^{2-} > F$ (sic)
(C) $Na^+ > F > Mg^{2+} > O^{2-} > Al^{3+}$ (sic)
(D) $O^{2-} > F > Na^+ > Mg^{2+} > Al^{3+}$ (sic)

Answer: (D) $O^{2-} > F > Na^+ > Mg^{2+} > Al^{3+}$ **(sic)** · Key from source paper

Q172 AIEEE 2009 MCQ

The set representing the correct order of ionic radius is :

(A) $Li^+ > Be^{2+} > Na^+ > Mg^{2+}$
(B) $Na^+ > Li^+ > Mg^{2+} > Be^{2+}$
(C) $Li^+ > Na^+ > Mg^{2+} > Be^{2+}$
(D) $Mg^{2+} > Be^{2+} > Li^+ > Na^+$

Answer: (B) $Na^+ > Li^+ > Mg^{2+} > Be^{2+}$ · Key from source paper

Q173 AIEEE 2006 MCQ

The increasing order of the first ionization enthalpies of the elements B, P, S and F (lowest first) is

(A) F < S < P < B
(B) P < S < B < F
(C) B < P < S < F
(D) B < S < P < F

Answer: (D) B < S < P < F · Key from source paper

Q174 AIEEE 2006 MCQ

Following statements regarding the periodic trends of chemical reactivity of the alkali metals and the halogens are given. Which of these statements gives the correct picture?

(A) The reactivity decreases in the alkali metals but increases in the halogens with increase in atomic number down the group
(B) In both the alkali metals and the halogens the chemical reactivity decreases with increase in atomic number down the group
(C) Chemical reactivity increases with increase in atomic number down the group in both the alkali metals and halogens
(D) In alkali metals the reactivity increases but in the halogens it decreases with increase in atomic number down the group

Answer: (D) In alkali metals the reactivity increases but in the halogens it decreases with increase in atomic number down the group · Key from source paper

Q175 AIEEE 2005 MCQ

In which of the following arrangements the order is NOT according to the property indicated against it?

(A) $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$
Increasing ionic size

(B) $B < C < N < O$
Increasing first ionization enthalpy

(C) $I < Br < F < Cl$
Increasing electron gain enthalpy (with negative sign)

(D) $Li < Na < K < Rb$ Increasing metallic radius

Answer: (B) $B < C < N < O$
Increasing first ionization enthalpy · Key from source paper

Q176 AIEEE 2005 MCQ

Which of the following oxides is amphoteric in character?

(A) CaO

(B) CO_2

(C) SiO_2

(D) SnO_2

Answer: (D) SnO_2 · Key from source paper

Q177 AIEEE 2004 MCQ

Which one the following ions has the highest value of ionic radius?

(A) Li^{+}

(B) F^{-}

(C) O^{2-}

(D) B^{3+}

Answer: (C) O^{2-} · Key from source paper

Q178 AIEEE 2004 MCQ

The formation of the oxide ion $O^{2-}(g)$ requires first an exothermic and then an endothermic step as shown below $O(g) + e^{-}\ O^{-}(g)\ \Delta H^{\circ} = -142\,kJmol^{-1}\ O^{-}(g) + e^{-}\ O^{2-}(g)\ \Delta H^{\circ} = 844\,kJmol^{-1}$

(A) Oxygen is more electronegative

(B) O^{-} ion has comparatively larger size than oxygen atom

(C) O^{-} ion will tend to resist the addition of another electron

(D) Oxygen has high electron affinity

Answer: (C) O^{-} **ion will tend to resist the addition of another electron** · Key from source paper

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Q179 AIEEE 2004 MCQ

Among Al_2O_3, SiO_2, P_2O_3 and SO_2 the correct order of acid strength is

(A) $SO_2 < P_2O_3 < SiO_2 < Al_2O_3$
(B) $Al_2O_3 < SiO_2 < P_2O_3 < SO_2$
(C) $Al_2O_3 < SiO_2 < SO_2 < P_2O_3$
(D) $SiO_2 < SO_2 < Al_2O_3 < P_2O_3$

Answer: (B) $Al_2O_3 < SiO_2 < P_2O_3 < SO_2$ · Key from source paper

Q180 AIEEE 2003 MCQ

According to the Periodic Law of elements, the variation in properties of elements is related to their

(A) nuclear masses
(B) atomic numbers
(C) nuclear neutron-proton number ratios
(D) atomic masses

Answer: (B) atomic numbers · Key from source paper

Q181 AIEEE 2003 MCQ

Which one of the following is an amphoteric oxide?

(A) Na_2O
(B) SO_2
(C) B_2O_3
(D) ZnO

Answer: (D) ZnO · Key from source paper

Q182 AIEEE 2003 MCQ

The atomic numbers of vanadium (V), Chromium (Cr), manganese (Mn) and iron (Fe) are respectively 23 , 24,25 and 26 . Which one of these may be expected to have the highest second ionization enthalpy?

(A) Cr
(B) Mn
(C) Fe
(D) V

Answer: (A) Cr · Key from source paper