

## JEE MAIN CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES — PYQS

Max. Marks: 220

Questions: 55

### Section A (MCQ) — 52 questions

**Q.1** Match **List - I** with **List - II**.

| List - I<br>Electronic configuration of neutral atom (where $n = 2$ ) |            | List - II<br>Ionization Energy ( $\text{kJ mol}^{-1}$ ) |      |
|-----------------------------------------------------------------------|------------|---------------------------------------------------------|------|
| 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 : [JEE Main 2026 (Online) 8th April Evening Shift]

- (1) A-II, B-III, C-IV, D-I  
 (2) A-IV, B-III, C-II, D-I  
 (3) A-III, B-II, C-IV, D-I  
 (4) A-III, B-II, C-I, D-IV



Solution

**Q.2** 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.

[JEE Main 2026 (Online) 6th April Evening Shift]

- (1) lowest and lowest      (2) highest and lowest  
 (3) lowest and highest      (4) highest and highest

 Scan or tap for the  
full solution


**Q.3** 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  $\text{OF}_2$  is +2 and in  $\text{Na}_2\text{O}$  is -2.

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

[JEE Main 2026 (Online) 5th April Morning Shift]

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

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

 Scan or tap for the  
full solution


**Q.4** Given below are two statements :

**Statement-I:** The number of pairs among  $[\text{Al}_2\text{O}_3, \text{Cr}_2\text{O}_3]$ ,  $[\text{Cl}_2\text{O}_7, \text{Mn}_2\text{O}_7]$ ,  $[\text{Na}_2\text{O}, \text{V}_2\text{O}_3]$  and  $[\text{CO}, \text{N}_2\text{O}]$  that contain oxides of same nature (acidic, basic, neutral or amphoteric) is 4.

**Statement-II:** Among  $\text{Na}_2\text{O}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{CO}$  and  $\text{Cl}_2\text{O}_7$ , the most basic and acidic oxides are  $\text{Na}_2\text{O}$  and  $\text{Cl}_2\text{O}_7$ , respectively.

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

[JEE Main 2026 (Online) 5th April Evening Shift]

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

 Scan or tap for the  
full solution


**Q.5** A monoatomic anion ( $\text{A}^-$ ) has 45 neutrons and 36 electrons. Atomic mass, group in the periodic table and physical state at room temperature of the element (A) respectively are

[JEE Main 2026 (Online) 4th April Morning Shift]

- (1) 80, 17, liquid      (2) 81, 16, solid  
 (3) 80, 16, gas      (4) 81, 15, gas

 Scan or tap for the  
full solution


**Q.6** The 1<sup>st</sup> ionization enthalpy for Mg is +737 kJ/mol. The most probable estimated value of the 2<sup>nd</sup> ionization enthalpy of Mg is \_\_\_\_\_.

[JEE Main 2026 (Online) 4th April Evening Shift]

- (1) -906 kJ/mol      (2) -856 kJ/mol  
 (3) +1450 kJ/mol      (4) +590 kJ/mol

 Scan or tap for the  
full solution


**Q.7** Given below are two statements :

**Statement-I:** The first ionisation enthalpy of the elements Na, Mg, Cl and Ar follows the order  $\text{Na} > \text{Mg} > \text{Cl} > \text{Ar}$ .

**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 :

[JEE Main 2026 (Online) 2nd April Morning Shift]

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

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**Q.8** The correct set that contains all kinds (basic, acidic, amphoteric and neutral) of oxides is :

[JEE Main 2026 (Online) 2nd April Evening Shift]

- (1)  $\text{Na}_2\text{O}$ ,  $\text{K}_2\text{O}$ ,  $\text{Al}_2\text{O}_3$  and  $\text{As}_2\text{O}_3$
- (2)  $\text{Al}_2\text{O}_3$ ,  $\text{As}_2\text{O}_3$ ,  $\text{CO}$  and  $\text{NO}$
- (3)  $\text{K}_2\text{O}$ ,  $\text{Cl}_2\text{O}_7$ ,  $\text{As}_2\text{O}_3$  and  $\text{NO}$
- (4)  $\text{Na}_2\text{O}$ ,  $\text{N}_2\text{O}$ ,  $\text{Al}_2\text{O}_3$  and  $\text{CO}$



Solution

**Q.9** Given below are two statements :

**Statement-I:** The second ionization enthalpy of B, Al and Ga is in the order of  $\text{B} > \text{Al} > \text{Ga}$ .

**Statement-II:** The correct order in terms of first ionization enthalpy is  $\text{Si} < \text{Ge} < \text{Pb} < \text{Sn}$ .

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

[JEE Main 2026 (Online) 2nd April Evening Shift]

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

Scan or tap for the full solution



**Q.10** In period 4 of the periodic table, the elements with highest and lowest atomic radii are respectively.

[JEE Main 2026 (Online) 28th January Morning Shift]

- (1) Rb & Br
- (2) Na & Cl
- (3) K & Br
- (4) K & Se

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**Q.11** 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.

[JEE Main 2026 (Online) 28th January Evening Shift]

- (1) 7 and 5
- (2) 6 and 7
- (3) 5 and 7
- (4) 5 and 6

Scan or tap for the full solution



**Q.12** Given below are two statements :

**Statement-I:**  $\text{K} > \text{Mg} > \text{Al} > \text{B}$  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

[JEE Main 2026 (Online) 24th January Morning Shift]

- (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

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**Q.13** The correct order of C, N, O and F in terms of second ionisation potential is

[JEE Main 2026 (Online) 24th January Evening Shift]

- (1)  $\text{C} < \text{N} < \text{F} < \text{O}$
- (2)  $\text{C} < \text{F} < \text{N} < \text{O}$
- (3)  $\text{F} < \text{N} < \text{C} < \text{O}$
- (4)  $\text{C} < \text{O} < \text{N} < \text{F}$

Scan or tap for the full solution



**Q.14** The correct trend in the first ionization enthalpies of the elements in the 3<sup>rd</sup> period of periodic table is :

[JEE Main 2026 (Online) 23rd January Morning Shift]

- (1)  $\text{Si} < \text{S} < \text{Al} < \text{P} < \text{Cl}$
- (2)  $\text{Al} < \text{Si} < \text{S} < \text{P} < \text{Cl}$
- (3)  $\text{S} < \text{Si} < \text{Al} < \text{P} < \text{Cl}$
- (4)  $\text{Al} < \text{S} < \text{P} < \text{Si} < \text{Cl}$

Scan or tap for the full solution



**Q.15** 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  $\text{O}^{2-}$  is larger than that of  $\text{F}^-$ .

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

[JEE Main 2026 (Online) 23rd January Evening Shift]

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

Scan or tap for the full solution



**Q.16** A 'p'-block element (E) and hydrogen form a binary cation  $(\text{EH}_x)^+$ , while  $\text{EH}_3$  on treatment with  $\text{K}_2\text{HgI}_4$  in alkaline medium gives a precipitate of basic mercury(II) amido-iodine. Given below are first ionisation enthalpy values ( $\text{kJ mol}^{-1}$ ) for first element each from group 13, 14, 15 and 16. Identify the correct first ionisation enthalpy value for element E.

[JEE Main 2026 (Online) 22nd January Morning Shift]

- (1) 1402
- (2) 1086
- (3) 801
- (4) 1312

Scan or tap for the full solution



**Q.17** 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 :

[JEE Main 2026 (Online) 22nd January Evening Shift]

- (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

Scan or tap for the full solution 

**Q.18** 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 :

[JEE Main 2026 (Online) 21st January Morning Shift]

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

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**Q.19** Given below are two statements :

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

**Statement-II:** The correct order in terms of the magnitude of electron gain enthalpy is  $Cl > Br > S > O$ .

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

[JEE Main 2026 (Online) 21st January Evening Shift]

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

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**Q.20** The atomic number of the element from the following with lowest 1<sup>st</sup> ionisation enthalpy is :

[JEE Main 2025 (Online) 8th April Evening Shift]

- (1) 32 (2) 35 (3) 19 (4) 87

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**Q.21** Choose the incorrect trend in the atomic radii (r) of the elements.

[JEE Main 2025 (Online) 7th April Evening Shift]

(1)  $r_{Rb} < r_{Cs}$

(2)  $r_{At} < r_{Cs}$

(3)  $r_{Br} < r_K$

(4)  $r_{Mg} < r_{Al}$

Scan or tap for the full solution 

**Q.22** 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 1<sup>st</sup> 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: [JEE Main 2025 (Online) 3rd April Morning Shift]

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

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**Q.23** Match the LIST-I with LIST-II

| LIST-I<br>(Family) |                      | LIST-II<br>(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: [JEE Main 2025 (Online) 3rd April Evening Shift]

- (1) A-IV, B-I, C-II, D-III  
 (2) A-IV, B-III, C-I, D-II  
 (3) A-III, B-I, C-IV, D-II  
 (4) A-II, B-III, C-IV, D-I

  
Solution

**Q.24** 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)?

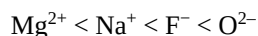
[JEE Main 2025 (Online) 2nd April Evening Shift]

- (1)  $D < A < B < C$  (2)  $A < B < C < D$   
 (3)  $A < C < B < D$  (4)  $A < D < B < C$

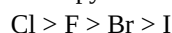
Scan or tap for the full solution 

**Q.25** Given below are two statements :

**Statement-I:** The radii of isoelectronic species increase in the order:



**Statement-II:** The magnitude of electron gain enthalpy of halogens decreases in the order:



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

[JEE Main 2025 (Online) 29th January Morning Shift]

- (1) Statement-I is incorrect but Statement-II is correct
- (2) Both Statement-I and Statement-II are correct
- (3) Statement-I is correct but Statement-II is incorrect
- (4) Both Statement-I and Statement-II are incorrect

Scan or tap for the full solution



**Q.26** The type of oxide formed by the element among Li, Na, Be, Mg, B and Al that has the least atomic radius is :

[JEE Main 2025 (Online) 29th January Evening Shift]

- (1) AO      (2) AO<sub>2</sub>      (3) A<sub>2</sub>O      (4) A<sub>2</sub>O<sub>3</sub>

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**Q.27** First ionisation enthalpy values of first four group 15 elements are given below. Choose the correct value for the element that is a main component of apatite family :

[JEE Main 2025 (Online) 29th January Evening Shift]

- (1) 834 kJ mol<sup>-1</sup>      (2) 947 kJ mol<sup>-1</sup>
- (3) 1402 kJ mol<sup>-1</sup>      (4) 1012 kJ mol<sup>-1</sup>

Scan or tap for the full solution



**Q.28** The incorrect decreasing order of atomic radii is

[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) Si > P > Cl > F      (2) Mg > Al > C > O
- (3) Al > B > N > F      (4) Be > Mg > Al > Si

Scan or tap for the full solution



**Q.29** 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 :

[JEE Main 2025 (Online) 28th January Evening Shift]

- (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

Scan or tap for the full solution



**Q.30** 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:

[JEE Main 2025 (Online) 24th January Morning Shift]

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

Scan or tap for the full solution



**Q.31** 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 :

[JEE Main 2025 (Online) 24th January Evening Shift]

- (1) Group 4      (2) Group 2
- (3) Group 13      (4) Group 14

Scan or tap for the full solution



**Q.32** The element that does not belong to the same period of the remaining elements (modern periodic table) is:

[JEE Main 2025 (Online) 23rd January Morning Shift]

- (1) Platinum      (2) Osmium
- (3) Iridium      (4) Palladium

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**Q.33** Match **List-I** with **List-II**.

[JEE Main 2025 (Online) 22nd January Morning Shift]

| List - I |                                                              | List - II |                     |
|----------|--------------------------------------------------------------|-----------|---------------------|
| A.       | $\text{Al}^{3+} < \text{Mg}^{2+} < \text{Na}^+ < \text{F}^-$ | I.        | Ionisation Enthalpy |
| B.       | $\text{B} < \text{C} < \text{O} < \text{N}$                  | II.       | Metallic character  |
| C.       | $\text{B} < \text{Al} < \text{Mg} < \text{K}$                | III.      | Electronegativity   |
| D.       | $\text{Si} < \text{P} < \text{S} < \text{Cl}$                | IV.       | Ionic radii         |

- (1) A-IV, B-I, C-II, D-III
- (2) A-III, B-IV, C-II, D-I
- (3) A-II, B-III, C-IV, D-I
- (4) A-IV, B-I, C-III, D-II



Solution

**Q.34** Which of the following electronegativity order is incorrect?

[JEE Main 2025 (Online) 22nd January Morning Shift]

- (1)  $S < Cl < O < F$  (2)  $Al < Si < C < N$   
 (3)  $Al < Mg < B < N$  (4)  $Mg < Be < B < N$

Scan or tap for the full solution



**Q.35** 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 :

[JEE Main 2025 (Online) 22nd January Evening Shift]

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

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**Q.36** Match List I with List II

| LIST I<br>(Elements) |        | LIST II<br>(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       |

Choose the correct answer from the options given below:

[JEE Main 2024 (Online) 8th April Morning Shift]

- (1) A-III, B-II, C-I, D-IV  
 (2) A-II, B-I, C-IV, D-III  
 (3) A-II, B-III, C-IV, D-I  
 (4) A-IV, B-III, C-II, D-I



Solution

**Q.37** Identify the correct statements about p-block elements and their compounds.

Choose the correct answer from the options given below :

- 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.

[JEE Main 2024 (Online) 8th April Evening Shift]

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

Scan or tap for the full solution



**Q.38** The electron affinity values 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 :

[JEE Main 2024 (Online) 6th April Morning Shift]

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

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**Q.39** 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 :

[JEE Main 2024 (Online) 5th April Morning Shift]

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

Scan or tap for the full solution



**Q.40** Given below are two statements :

**Statement-I:** The metallic radius of Na is 1.86 Å and the ionic radius of  $Na^+$  is lesser than 1.86 Å

**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 :

[JEE Main 2024 (Online) 5th April Evening Shift]

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

(4) Statement-I is correct but Statement-II is false



**Q.41** 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 : [JEE Main 2024 (Online) 4th April Morning Shift]

- (1)  $A < B < D < C < E$       (2)  $C < E < A < B < D$   
(3)  $E < C < A < B < D$       (4)  $B < D < C < E < A$



**Q.42** 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

[JEE Main 2024 (Online) 4th April Morning Shift]

- (1) 7                      (2) 3                      (3) 5                      (4) 6



**Q.43** 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 :

[JEE Main 2024 (Online) 4th April Evening Shift]

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



**Q.44** In case of isoelectronic species the size of  $F^-$ , Ne and  $Na^+$  is affected by :

[JEE Main 2024 (Online) 1st February Morning Shift]

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



**Q.45** Given below are two statements :

**Statement-I:** Both metals and non-metals 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 options given below :

[JEE Main 2024 (Online) 1st February Evening Shift]

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



**Q.46** The correct sequence of electron gain enthalpy of the elements listed below is

- A. Ar                                      B. Br  
C. F                                        D. S

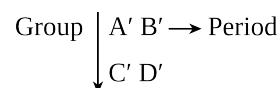
Choose the **most appropriate** from the options given below:

[JEE Main 2024 (Online) 31st January Morning Shift]

- (1)  $A > D > C > B$                       (2)  $A > D > B > C$   
(3)  $D > C > B > A$                       (4)  $C > B > D > A$



**Q.47** Consider the following elements.



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 :

[JEE Main 2024 (Online) 31st January Evening Shift]

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



**Q.48** Given below are two statements:

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

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

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

[JEE Main 2024 (Online) 30th January Evening Shift]

- (1) Statement-I is False but Statement-II is true

- (2) Both Statement-I and Statement-II are False  
 (3) Statement-I is True But Statement-II is False  
 (4) Both Statement-I and Statement-II are True

Scan or tap for the  
full solution



**Q.49** 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 :

[JEE Main 2024 (Online) 29th January Morning Shift]

- (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) Both A and R are true and R is the correct explanation of A  
 (4) A is true but R is false

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**Q.50** 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

[JEE Main 2024 (Online) 29th January Evening Shift]

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

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**Q.51** The element having the highest first ionization enthalpy is

[JEE Main 2024 (Online) 29th January Evening Shift]

- (1) C              (2) Al              (3) Si              (4) N

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**Q.52** 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 the light of the above statements, choose the most appropriate answer from the options given below :

[JEE Main 2024 (Online) 27th January Morning Shift]

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

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## Section B (Numerical) — 3 questions

**Q.53** First and second ionization enthalpies of lithium are  $520 \text{ kJ mol}^{-1}$  and  $7297 \text{ kJ mol}^{-1}$  respectively. Energy required to convert 3.5 mg lithium (g) into  $\text{Li}^{2+}(\text{g})$  [ $\text{Li}(\text{g}) \rightarrow \text{Li}^{2+}(\text{g})$ ] is \_\_\_\_\_ kJ. (nearest integer)

[Molar mass of Li =  $7 \text{ g mol}^{-1}$ ]

[JEE Main 2026 (Online) 6th April Morning Shift]

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**Q.54** Among the following oxides of p-block elements, number of oxides having amphoteric nature is \_\_\_\_\_.

$\text{Cl}_2\text{O}_7$ ,  $\text{CO}$ ,  $\text{PbO}_2$ ,  $\text{N}_2\text{O}$ ,  $\text{NO}$ ,  $\text{Al}_2\text{O}_3$ ,  $\text{SiO}_2$ ,  $\text{N}_2\text{O}_5$ ,  $\text{SnO}_2$  [JEE Main 2024 (Online) 1st February Morning Shift]

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**Q.55** If IUPAC name of an element is "Unununnium" then the element belongs to  $n^{\text{th}}$  group of Periodic table. The value of n is \_\_\_\_\_.

[JEE Main 2024 (Online) 30th January Morning Shift]

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full solution



## ANSWER KEY

### Section A (MCQ) — 52 questions

| Ques. | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  | 10 | 11 |
|-------|----|----|----|----|----|----|----|----|----|----|----|
| Ans.  | 1  | 3  | 1  | 1  | 1  | 3  | 4  | 3  | 2  | 3  | 3  |
| Ques. | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| Ans.  | 3  | 1  | 2  | 3  | 1  | 4  | 2  | 3  | 4  | 4  | 2  |
| Ques. | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 |
| Ans.  | 2  | 1  | 2  | 4  | 4  | 4  | 1  | 1  | 3  | 4  | 1  |
| Ques. | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 |
| Ans.  | 3  | 4  | 4  | 4  | 4  | 2  | 4  | 3  | 2  | 4  | 1  |
| Ques. | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 |    |    |    |
| Ans.  | 3  | 2  | 4  | 1  | 1  | 3  | 4  | 3  |    |    |    |

### Section B (Numerical) — 3 questions

| Ques. | 53 | 54 | 55 |  |  |  |  |  |  |  |  |
|-------|----|----|----|--|--|--|--|--|--|--|--|
| Ans.  | 4  | 3  | 11 |  |  |  |  |  |  |  |  |