

NEET CLASSIFICATION OF ELEMENTS AND PERIODICITY IN PROPERTIES — ATOMIC RADIUS AND IONIC RADIUS — PYQS

Max. Marks: 52

Questions: 13

Section A (MCQ) — 13 questions

Q.1 Identify the incorrect statement from the following:

[NEET (UG) 2026]

- (1) The largest and the smallest species among Mg , Mg^{2+} , Al and Al^{3+} are Al and Mg^{2+} , respectively.
- (2) The IUPAC name of the element with atomic number 107 is Unnilseptium.
- (3) The similarity in behaviour of Li with Mg is referred to as 'diagonal relationship'.
- (4) The oxidation state and covalency of Al in $[\text{AlCl}(\text{H}_2\text{O})_5]^{2+}$ are 3 and 6 respectively.

 Scan or tap for the
full solution


Q.2 The correct decreasing order of atomic radii (pm) of Li , Be , B and C is

[RE-NEET (UG) 2024]

- (1) $\text{Be} > \text{Li} > \text{B} > \text{C}$
- (2) $\text{Li} > \text{Be} > \text{B} > \text{C}$
- (3) $\text{C} > \text{B} > \text{Be} > \text{Li}$
- (4) $\text{Li} > \text{C} > \text{Be} > \text{B}$

 Scan or tap for the
full solution


Q.3 The element expected to form largest ion to achieve the nearest noble gas configuration is

[NEET (UG) 2023]

- (1) F
- (2) N
- (3) Na
- (4) O

 Scan or tap for the
full solution


Q.4 The species Ar , K^+ and Ca^{2+} contain the same number of electrons. In which order do their radii increase?

[AIPMT 2015 (Cancelled)]

- (1) $\text{Ca}^{2+} < \text{K}^+ < \text{Ar}$
- (2) $\text{K}^+ < \text{Ar} < \text{Ca}^{2+}$
- (3) $\text{Ar} < \text{K}^+ < \text{Ca}^{2+}$
- (4) $\text{Ca}^{2+} < \text{Ar} < \text{K}^+$

 Scan or tap for the
full solution


Q.5 Which of the following orders of ionic radii is correctly represented?

[AIPMT 2014]

- (1) $\text{H}^- > \text{H}^+ > \text{H}$
- (2) $\text{Na}^+ > \text{F}^- > \text{O}^{2-}$
- (3) $\text{F}^- > \text{O}^{2-} > \text{Na}^+$
- (4) $\text{Al}^{3+} > \text{Mg}^{2+} > \text{N}^{3-}$

 Scan or tap for the
full solution


Q.6 Identify the wrong statement in the following.

[AIPMT 2012 (Prelims)]

- (1) Amongst isoelectronic species, smaller the positive charge on the cation, smaller is the ionic radius.
- (2) Amongst isoelectronic species, greater the negative charge on the anion, larger is the ionic radius.
- (3) Atomic radius of the elements increases as one moves down the first group of the periodic table.
- (4) Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the periodic table.

 Scan or tap for the
full solution


Q.7 Among the elements Ca , Mg , P and Cl , the order of increasing atomic radii is

[AIPMT 2010 (Mains)]

- (1) $\text{Mg} < \text{Ca} < \text{Cl} < \text{P}$
- (2) $\text{Cl} < \text{P} < \text{Mg} < \text{Ca}$
- (3) $\text{P} < \text{Cl} < \text{Ca} < \text{Mg}$
- (4) $\text{Ca} < \text{Mg} < \text{P} < \text{Cl}$

 Scan or tap for the
full solution


Q.8 Among the following which one has the highest cation to anion size ratio?

[AIPMT 2010 (Mains)]

- (1) CsI
- (2) CsF
- (3) LiF
- (4) NaF

 Scan or tap for the
full solution


Q.9 The correct order of the decreasing ionic radii among the following isoelectronic species is

[AIPMT 2010 (Prelims)]

- (1) $\text{Ca}^{2+} > \text{K}^+ > \text{S}^{2-} > \text{Cl}^-$
- (2) $\text{Cl}^- > \text{S}^{2-} > \text{Ca}^{2+} > \text{K}^+$
- (3) $\text{S}^{2-} > \text{Cl}^- > \text{K}^+ > \text{Ca}^{2+}$
- (4) $\text{K}^+ > \text{Ca}^{2+} > \text{Cl}^- > \text{S}^{2-}$

 Scan or tap for the
full solution


Q.10 Identify the correct order of the size of the following:

[AIPMT 2007]

- (1) $\text{Ca}^{2+} < \text{K}^+ < \text{Ar} < \text{Cl}^- < \text{S}^{2-}$
- (2) $\text{Ar} < \text{Ca}^{2+} < \text{K}^+ < \text{Cl}^- < \text{S}^{2-}$
- (3) $\text{Ca}^{2+} < \text{Ar} < \text{K}^+ < \text{Cl}^- < \text{S}^{2-}$
- (4) $\text{Ca}^{2+} < \text{K}^+ < \text{Ar} < \text{S}^{2-} < \text{Cl}^-$

 Scan or tap for the
full solution


Q.11 Ionic radii are

[AIPMT 2004]

- (1) inversely proportional to effective nuclear charge
- (2) inversely proportional to square of effective nuclear charge
- (3) directly proportional to effective nuclear charge
- (4) directly proportional to square of effective nuclear charge.

Scan or tap for the full solution



Q.12 The ions O^{2-} , F^- , Na^+ , Mg^{2+} and Al^{3+} are isoelectronic. Their ionic radii show [AIPMT 2003]

- (1) a significant increase from O^{2-} to Al^{3+}
- (2) a significant decrease from O^{2-} to Al^{3+}
- (3) an increase from O^{2-} to F^- and then decrease from Na^+ to Al^{3+}
- (4) a decrease from O^{2-} to F^- and then increase from Na^+ to Al^{3+}

Scan or tap for the full solution



Q.13 Which of the following is isoelectronic?

[AIPMT 2002]

- (1) CO_2 , NO_2
- (2) NO_2^- , CO_2
- (3) CN^- , CO
- (4) SO_2 , CO_2

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7	8	9	10	11
Ans.	1	2	2	1	1	1	2	2	3	1	1
Ques.	12	13									
Ans.	2	3									