DPP-03

Only one correct:

1. Find the highest ratio of IP values of given pair of elements :

(A) He: Ne (B) Ne: Ar

(C) He: Xe (D) Kr: Xe

2. Which one of the following electronic configuration of an atom has the highest ionisation energy.

(A) $1\ s^2 2\ s^2 2p^3$ (B) $1s^2 2s^2 2p^6 3s^1$

(C) $1\ s^2 2\ s^2 2p^6$ (D) $1\ s^2 2\ s^2 2p^5$

3. Give the correct order of initials T (true) or F (false) for following statements.

(I) Top positions of Lother-Mayer's atomic volume curve are occupied by Alkali metals.

(II) Number of elements presents in the fifth period of the periodic table are 32.

(III) 2^{nd} I.P. of Mg is less than the 2^{nd} I.P. of Na.

(IV) A p-orbital can take maximum of six electrons.

(A) TFTF (B) TFFT (C) FFTF (D) TTFF

4. In crystal of which of the following ionic compound, would you expect the maximum distance between centre of cation and anion.

(A) CsF (B) CsI

(C) LiI (D) LiF

5. The ionic radii of F, F^-, O^{2-} are in the order of :

(A) $O^{2-} < F^- < F$ (B) $F^- > O^{2-} > F$

(C) $O^{2-} > F^- > F$ (D) $O^{2-} = F^- > F$

6. The ionic radii of N^{3-}, O^{2-} and F^- are respectively given by :

(A) 1.36,1.40,1.71 (B) 1.36,1.71,1.40

(C) 1.71,1.40,1.36 (D) 1.71,1.36,1.40

Assertion & Reason

7. **Statement - 1**: The ionisation potential of Sn is greater than Pb.

Statement-2: Usually ionisation energy decreases down the group.

(A) Statement-1 is true, statement-2 is true and statement-2 is correct explanation for statement-1.

(B) Statement-1 is true, statement-2 is true and statement-2 is NOT the correct explanation for statement-1.

(C) Statement-1 is true, statement-2 is false.

(D) Statement-1 is false, statement-2 is true.

8. **Statement-1:** (I.E.)$_n$ of an atom is always greater than (I.E.)$_{n-1}$(n is integer number)

Statement-2: ne/Z ratio decreases on successive elimination of electrons.

(A) Statement-1 is true, statement-2 is true and statement-2 is correct explanation for statement-1.

(B) Statement-1 is true, statement-2 is true and statement-2 is NOT the correct explanation for statement-1.

(C) Statement-1 is true, statement-2 is false.

(D) Statement-1 is false, statement-2 is true.

9. **Arrange the following periodic properties with justification.**

(A) Increasing order of first ionization energy N, O, F

(B) Increasing order of ionization energy $Cl^-, K^+, S^{-2}, Ca^{2+}$

(C) Increasing order of ionization energy $Li^+, Be^+, B^+, C^+, N^+, O^+, F^+$

(D) Increasing order of ionization energy Fe, Fe^{+2}, Fe^{+3}

(E) Increasing order of first ionization potential Mg, Al, Si, Na

10. Arrange the following in increasing order of radii

(i) I, I^+, I^-

(ii) C, N, Si, P

(iii) O^{2-}, N^{3-}, F^-

(iv) $Be^{+2}, Cl^-, S^{2-}, Na^+, Mg^{2+}$

(v) B, Be, Li, Na

(vi) Cl^-, S^{2-}, Ca^{2+}

(vii) $Mg^{2+}, Al^{3+}, Na^+, O^{2-}, F^-$

(viii) S, O, Se, F

ANSWER KEY

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1. C **2.** C **3.** A **4.** B **5.** C **6.** C **7.** D

8. **A**

9. **(a)** $F > N > O$

(b) $S^{-2} < Cl^{-} < K^{+} < Ca^{+2}$

(c) $Be^{+} < C^{+} < B^{+} < N^{+} < F^{+} < O^{+} < Li^{+}$

(d) $Fe < Fe^{+2} < Fe^{+3}$

(e) $Na < Al < Mg < Si$

10. **(i)** $I^{-} > I > I^{+}$ **(ii)** $C > N < P < S$

(iii) $F^{-} < O^{2-} < N^{-3}$ **(iv)** $Be^{+2} < Mg^{2+} < Na^{+} < Cl^{-} < S^{-2}$

(v) $B < Be < Li < Na$ **(vi)** $S^{2-} > Cl^{-} > Ca^{+2}$

(vii) $O^{2-} > F^{-} > Na^{+} > Mg^{2+} > Al^{3+}$ **(viii)** $Se > S > O > F$