CHEMISTRY

BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

CHEMICAL PERIODICITY

Exercise

1. The element $Z = 114$ has been discovered recently. It will belong to which of the family/

group and electronic configuration?

A. Halogen family , $[Rn]5f^{14}6d^{10}7s^{2}7p^{5}$

B. Carbon family, $[Rn]5f^{14}6d^{10}7s^{2}7p^{2}$

C. Oxygen family $[Rn]5f^{14}6d^{10}7s^{2}7p^{4}$

D. Nitrogen family $[Rn]5f^{14}6d^{10}7s^{2}7p^{6}$

Answer: B

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2. In which of the following options order of arrangement does not agree with the variation of property indicated against it ? A) $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$ (increasing ionic size) B)$B < C < N < O$ (increasing first ionisation enthalpy) C)$I < Br < Cl < F$ (increasing electron gain enthalpy) D) $Li < Na < K < Rb$ (increasing metallic radius)

A. $B < C < N < O$ (increasing first ionisation enthalpy)

B. $I < Br < CI < F$ (increasing electron gain enthalpy)

C. $Li < Na < k < Rb$(increasing metallic radius)

D. $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$ (increasing ionic size)

Answer: A::B

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

A. $Ar < K^+ < Ca^{2+}$

B. $Ca^{2+} < Ar < K^+$

C. $Ca^{2+} < K^+ < Ar$

D. $K^+ < Ar < Ca^{2+}$

Answer: C

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

A. $H^- > H^+ > H$

B. $Na^+ > F^- > O^{2-}$

C. $F^- > O^{2-} > Na^+$

D. $Al^{3+} > Mg^{2+} > N^{3-}$

Answer: A

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5. Identify the wrong statement in the following ?

A. Amongst isolelectrnic species, smaller the positive charge on the cation, smaller is the ionic radius

B. Amongst isoelectrnic species, greater the negtive charge on the anion, larger is the ionic radius

C. Atoimc radius of the elements increases as one moves down the first group of

the periodic table

D. Atomic radius of the elements decreases as one moves across from left to right in the 2nd period of the peridoic table

Answer: A::B

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6. The correct decreasing order of ionic size among the following species is K^{+}, Cl^{-}, S^{-2} and Ca^{+2}.

A. $Ca^{2+} > K^{+} > S^{2-} > Cl^{-}$

B. $Cl^{-} > S^{2-} > Ca^{2+} > K^{+}$

C. $S^{2-} > Cl^{-} > K^{+} > Ca^{2+}$

D. $K^{+} > Ca^{2+} > Cl^{-} > S^{2-}$

Answer: C

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7. Which one of the following arrangements represents the correct order of electron gain enthalpy of the given atomic species?

A. $Cl < F < O < S$

B. $O < S < F < Cl$

C. $F < S < O < Cl$

D. $S < O < Cl < F$

Answer: B

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8. Which one of the following elements has the highest ionisation energy?

A. $[Ne]3s^2 3p^3$

B. $[Ne]3s^2 3p^2$

C. $[Ar]3d^{10}, 4s^2 4p^3$

D. $[Ne]3s^2 3p^1$

Answer: A

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9. Which one of the elements with the following outer orbital configuration may exhibit the larger number of oxidation states ?

A. $3d^3, 4s^2$

B. $3d^5, 4s^1$

C. $3d^5, 4s^2$

D. $3d^2, 4s^2$

Answer: C

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10. Which of the following oxides is not expected to react with sodium hydroxide ?

A. B_2O_3

B. CaO

C. SiO_2

D. BaO

Answer: B

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11. The correct of decreasing second ionisation enthalpy of $Ti(22), V(23), Cr(24)$ and $Mn(25)$ is

A. $Cr > Mn > V > Ti$

B. $V > Mn > Cr > Ti$

C. $Mn > Cr > Ti > V$

D. $Ti > V > Cr > Mn$

Answer: A

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12. Which of the following electrons configruations of an atom has the lowest ionisaytion enthalpy ?

A. $1s^2, 2s^2 2p^5$

B. $1s^2, 2s^2 2p^3$

C. $1s^2, 2s^2, 2p^2, 3s^1$

D. $1s^2, 2s^2 2p^6$

Answer: C

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13. The correct order of the size is

A. $Ca^{2+} < K^+ < Ar < S^{2-} < Cl^-$

B. $Ca^{2+} < K^{+} < Ar < Cl^{-} < S^{2-}$

C. $Ar < Ca^{2+} < K^{+} < Cl^{-} < S^{-}$

D. $Ca^{2+} < Ar < K^{+} < Cl^{-} < S^{-}$

Answer: B

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14. Ionic radii are

A. inversely proportional to effective nuclear charge

B. inversely proportional to square of effective nuclear charge

C. directly proptional to effective nuclear charge

D. directly proportional to sqaure of effect nuclear charge

Answer: A

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15. The ions $O^{2-}, F^{-}, Na^{+}, Mg^{2+}$, and $A1^{3+}$ are isolectronic. Their ionic radii show

A. an increase from O^{2-} to F^{-} and then decrease form Na^{+} to Al^{3+}

B. a decrease form O^{2-} to F^{-} and then increase form Na^{+} to Al^{3+}

C. a significant increases form O^{2-} to Al^{3+}

D. a significant decrease form O^{2-} to Al^{3+}

Answer: D

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16. Which of the following order is wrong-

A. $NH_3 < PH_3 < AsH_3$- Acidic

B. $Li < Be < BC -$ 1st Ionisation potential

C. $Al_2O_3 < MgO < Na_2O < K_2O -$ Basic

D. $Li^{+} < Na^{+} < K^{+} < Cs^{+} -$ Ionic radius

Answer: B

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17. An atom has electronic configuration $1s^2 2s^2 2p^6 3s^2 3P^6 3d^3 4s^2$. In which group wouold it be placed ?

A. fifth group

B. fifteenth group

C. second group

D. third group

Answer: A

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18. Correct order of 1st ionisationpotential (IP) among following elements Be, B, C, N, O is

A. $B < Be < C < O < N$

B. $B < Be < C < N < O$

C. $Be < B < C < N < O$

D. $Be < B < C < O < N$

Answer: A

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19. The first ionisation potentials (eV) of Be and B respectively are

A. 8.29,9.32

B. 9.32,9.32

C. 8.29,8.29

D. 9.32,8.29

Answer: D

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20. In the crystals of which of the following ionic compounds would you expect maximum distance between the centres of the cations and anion?

A. LiF

B. CsF

C. CsI

D. LiI

Answer: C

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21. Which one of the following ions will be smalllest in size?

A. Na^{+}

B. Mg^{2+}

C. F^{-}

D. O_2^{-}

Answer: B

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22. The element with atomic number $Z = 118$ will be categorised as a:

A. alkali

B. noble gas

C. lanthanide

D. transition element

Answer: B

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23. The electronic configuration of an element is $1s^2 2s^2 2p^6, 3s^2 3p^5$. The atomic number of

element present just below the above element in periodic table is:

A. 33

B. 34

C. 36

D. 49

Answer: A

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24. Among the following, the one which is the most basic is

A. ZnO

B. MgO

C. Al_2O_3

D. N_2O_5

Answer: B

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25. One of the characteristic propertise of non-metals is that they

A. are reducing agents

B. form basic oxides

C. form cations by electron

D. are electronegative

Answer: D

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26. A sudden large jump between the values of second and third ionisation energies of an element would be associated with the electronic configuration

A. $1s^2, 2s^2 2p^6, 3s^1$

B. $1s^2, 2s^2 2p^6, 3s^2 3p^1$

C. $1s^2, 2s^2 2p^6 m3s^2 3p^2$

D. $1s^2, 2s^2 2p^6, 3s^2$

Answer: D

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27. In the periodic table from left to right in a period, the atomic volume

A. decreases

B. increases

C. remains same

D. first decrease then increases

Answer: D

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28. If the atomic number of an element is 33, it will be placed in the periodic table in the ____

A. first group

B. third group

C. fifth group

D. seventh group

Answer: C

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29. Na^+, Mg^{2+}, Al^{3+}, and Si^{4+} are isoelectronic ions. Their ionic size will follow the order

A. $Na^+ > Mg^{2+} < Al^{3+} < Si^{4+}$

B. $Na^+ < Mg^{2+} > Al^{3+} > Si^{4+}$

C. $Na^+ > Mg^{2+} > Al^{3+} > Si^{4+}$

D. $Na^+ < Mg^{2+} < Al^{3+} < Si^{4+}$

Answer: C

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30. One would expect proton to have very large

A. charge

B. ionisation potential

C. hydration energy

D. radius

Answer: C

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31. Which of the following set has the strongest tendency to form anions?

A. Ga, In, Tl

B. Na,Mg,Al

C. N,O,F

D. V,Cr,Mn

Answer: C

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32. The ionisation of hydrogen atom would give rise to

A. hydride ion

B. hydronium ion

C. proton

D. hydroxyl ion

Answer: C

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33. In the periodic table, with the increase in atomic number the metallic nature of elements

A. decrease in a period and increases in a group

B. increases in a period and decreases in a group

C. increase in a period as well as in the group

D.

Answer: A

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34. The electronic configuration of four elements are given below. Which element does not belong to the same family as others ?

A. $[Xe]4f^{14}, 5d^{10}, 6s^2$

B. $[Kr]4d^{10}, 5s^2$

C. $[Ne]3s^2, 3p^5$

D. $[Ar]3d^{10}, 4s^2$

Answer: C

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35. Pauling's electronegativity values for elements are useful in predicting

A. polarity of the molecules

B. position in the emf series

C. coordination numbers

D. dipole moments

Answer: A

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