CHEMISTRY

BOOKS - SAI CHEMISTRY (TELUGU ENGLISH)

CLASSIFICATION OF ELEMENTS AND PERIODIC PROPORTIES

Mcq

1. Match the following.

A. (a) (IV) (III) (II) (1)

B. (III) (IV) (1) (II)

C. (II) (1) (IV) (III)

D. (IV) (III) (1) (11)

Answer: B

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2. The equation used to represent the electron gain enthalpy is

A. $X(g) + e^- \rightarrow X^-(g)$

B. $X(s) + e^- \rightarrow X^-(g)$

C. $X(g) \rightarrow X^+(g) + e^-$

D. $X(s) \rightarrow X^+(g) + e^-$

Answer: A

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3. The increasing order of the atomic radius of Si,S,Na, Mg, Al is

A. $S < Si < Al < Mg < Na$

B. $Na < Al < Mg < S < Si$

C. $Na < Mg < Si < Al < s$

D. $Na < Mg < Al < Si < S$

Answer: A

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4. The number of electrons in the valence shell of the central atom of a molecule is 8. The molecule is

A. BCI_3

B. BeH_2

C. SCI_2

D. SF_2

Answer: C

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5. The number of elements present in the fourth period is

A. 32

B. 8

C. 18

D. 2

Answer: C

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6. Which one of the following is correct order of second ionisation potential of Na, Ne, Mg and AI?

A. $Al < Na < Mg < Ne$

B. $Ne < AL < Na < Mg$

C. $Mg < AL < Ne < Na$

D. $Na < Mg < Ne < AI$

Answer: C

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7. Which one of the following order is correct for the first ionisation energies of the elements?

A. $B < Be < N < O$

B. $Be < B < N < O$

C. $B < Be < O < N$

D. $B < O < Be < N$

Answer: C

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8. The atomic numbers of elements A, B, C and D are $Z-1$, Z, $Z+1$ and $Z+2$ respectively. If 'B' is a noble gas, choose the correct answers from the following statements

Q (1) 'A' has higher electron affinity.

Q (2) 'C exists in + 2 oxidation state.

Q (3) 'D' is an alkaline earth metal.

A. (1) and (2)

B. (2) and (3)

C. (1) and (3)

D. (1),(2) and (3)

Answer: C

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9. Observe the following statements.

Q I. The physical and chemical properties of elements are periodic functions of their electronic confirguration.

Q II. Electronegativity of fluorine is less than the electronegativity of chlorine.

Q III. Electropositive nature decreases from top to bottom in a group.

The correct answer is

A. I, II and III are correct

B. Only I is correct

C. Only I and II are correct

D. Only II and III are correct

Answer: B

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10. Identify the correct order in which the covalent radius of the following elements increases.

Q I. Tl II.Ca III. Sc

A. (I), (II) ,(III)

B. (III), (II) ,(I)

C. (II), (I) ,(III)

D. (I), (III) ,(II)

Answer: D

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11. Which of the following is a favourable factor for cation formation?

A. High electronegativity

B. High electron affinity

C. Low ionisation potential

D. Smaller atomic size

Answer: C

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12. Which one of the following represents the correct order of electronegativity?

A. $P > O > N$

B. $N > P > O$

C. $O > N > P$

D. $N > O > P$

Answer: C

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13. The electronic configuration of elements A, B, and C are $[He]2s^1$, $[Ne]3s^1$ and $[Ar]4s^1$ respectively. Which one of the following order is correct for the first ionisation potentials (in $KJmol^{-1}$) of A, B and C?

A. $A > B > C$

B. $C > B > A$

C. $B > C > A$

D. $C > A > B$

Answer: A

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14. Ionic radii (in $\overset{o}{A}$) of As^{3+}, Sb^{3+} and Bi^{3+} follow the order

A. $As^{3+} > Sb^{3+} > Bi^{3+}$

B. $Sb^{3+} > Bi^{3+} > As^{3+}$

C. $Bi^{3+} > As^{3+} > Sb^{3+}$

D. $Bi^{3+} > Sb^{3+} > As^{3+}$

Answer: D

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15. Let electronegativity, ionisation energy and electron affinity be represented as EN, IP and EA respectively. Which one of the following equation is correct according to Mulliken?

A. $EN = IP \times EA$

B. $EN = \frac{IP}{EA}$

C. $EN = \frac{IP + EA}{2}$

D. $EN = IP - EA$

Answer: C

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16. The element with atomic number 12 belongs to ..... group and..... period.

A. 1^{st},third

B. 3^{rd},third

C. 2^{nd}, third

D. 2^{nd}, second

Answer: C

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17. The general electronic configuration of group III elements

A. ns^1np^2

B. ns^2np^3

C. ns^2np^2

D. ns^2np^1

Answer: D

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18. Which of the following has the highest first IP?

A. Al

B. Si

C. K

D. P

Answer: D

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19. O^{2-} and Si^{4+} are isoelectronic ions. If the ionic radius of O^{2-} is 1.4 $\overset{o}{A}$, the ionic radius of Si^{4+} will be

A. $1.4\overset{o}{A}$

B. $0.41\overset{o}{A}$

C. $2.8\overset{o}{A}$

D. $1.5\overset{o}{A}$

Answer: B

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20. Which of the following species has the highest ionisation potential?

A. Li

B. Mg^+

C. $A1^+$

D. Ne

Answer: A

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21. As per the Modern periodic law, the physical and chemical properties of elements are periodic functions of their

A. Atomic number

B. Electronic configuration

C. Atomic weight

D. Atomic size

Answer: A

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22. Which one of the following elements has the highest first ionisation potential?

A. Boron

B. Carbon

C. Nitrogen

D. Oxygen

Answer: C

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23. Of the following the one with largest size is

A. $C1^-$

B. Ar

C. K^+

D. Ca^{2+}

Answer: A

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24. The pair of elements that have similar chemical properties are

A. Beryllium and boron

B. Aluminium and magnesium

C. Carbon and nitrogen

D. lithium and magreisum.

Answer: D

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25. The order of decrease in atomic radii for Be, Na and Mg is

A. $Na > Mg > Be$

B. $Mg > Na > Be$

C. $Be > Na > Mg$

D. $Be > Mg > Na$

Answer: A

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26. The name of the element with atomic number 100 was adopted in honour of

A. Alfred Nobel

B. Enrico Fermi

C. Dmitri Mendeleef

D. Albert Einstein

Answer: B

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27. Which one of the following would you expect to have highest electronegativity?

A. Mg(atomic number 12)

B. S(atomic number 16)

C. B(atomic number 5)

D. Te(atomic number 52)

Answer: B

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28. Which one of the following is the largest ion?

A. Na^{+}

B. Mg^{2+}

C. O^{2-}

D. F^{-}

Answer: C

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29. The element that has the lowest first ionisation potential is

A. Nitrogen

B. Oxygen

C. Flurine

D. Neon

Answer: B

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30. Which of the following electronic configuration corresponds to an inert gas?

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

B. $1s^2, 2s^5, 2p^6$

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

D. $1s^2, 2s^5, 2p^6, 3s^1$

Answer: B

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31. The halogen with the highest ionisation potential is

A. F

B. C1

C. Br

D. I

Answer: A

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32. In the long form of Periodic Table, the elements having lowest ionisation potential are present in

A. Group 1

B. Group 14

C. Group 17

D. Group 18

Answer: A

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33. $A1^{3+}$ ion has a lower ionic radius than Mg^{2+} ion because

A. Mg atom has less number of neutrons than Al

B. $A1^{3+}$ has a higher nuclear charge than Mg^{2+}

C. Their electronegativities are different

D. A1 has a lower ionisation potential than Mg atom

Answer: B

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34. The most electronegative element is

A. Nitrogen

B. Oxygen

C. Fluorine

D. Chlorine

Answer: C

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35. Ionisation potential of Is electron is ... than that of 2s electron in the same atom.

A. Same

B. Lesser

C. Greater

D. None of the these

Answer: C

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36. Kr nulceus has a ..... radius than that of Ba.

A. Lesser

B. Greater

C. Same

D. None of the these

Answer: A

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37. EN of an atom is given by the average of EA and.....

A. Electronegativity

B. Ionisation energy

C. Electron affinity

D. Electropsitive character

Answer: B

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38. Among the alkali metals, the metal with the highest ionisation potential is

A. Na

B. K

C. Li

D. C

Answer: C

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