Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

Class:11
Subject: Chemistry
Topic: Classification
No. of Questions: 20
Duration: 60 Min
Maximum Marks: 60

1. Assertion (A)Fluorine has ales negative electron affinity than chlorine.
Reason (R)There is relatively greater effectiveness of 2p-electron sin the small F atom to repel the additional electron entering the atom than to 3p-electron sin the larger Clatom.

A. Both (A) and (R) are true and (R) is the correct explanation of (A).
B. Both (A) and (R) are true but (R) is not the correct explanation of (A).

C.(A)is true but(R)isfalse.
D.(A)is falsebut(R)istrue.
Sol: A

2. K^+Cl^-, $Ca^{2+}$and S^{2-}ions are isoelectronic. The decreasing order of their size is

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

Sol: A
All the ions are isoelectronic; they contain same number of electronics hells. Hence the size decreases with the increase in nuclear charge (atomic number). So the correct order is given in option 1.

3. Ofthefollowingwhichhasthesmallestradius?
A. Cs^+
B. Mg^{2+}
C. Na^+
D. Li^+
Sol: B
Li and Mg are elements showing diagonal relationship. Hence, they have almost same atomic radius. Mg is smaller than Na. Size of $Mg^{2+}$is much lesser than Mg atom. Hence the alternative to be chosen is 2.

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

4. Ionisation energy will be maximum for the process
A. $Ba \rightarrow Ba^{++}$
B. $Be \rightarrow Be^{++}$
C. $Cs \rightarrow Cs^{+}$
D. $Li \rightarrow Li^{+}$

Sol: B
The ionization energy increases from left or ight along a period and decreases from top to bottom alonga group. Further, ionization energy of an element with half filled or completely filled or bitals is higher, These Cond ionization energy is always more than the first ionization energy. Considering all these points we can conclude that ionization energy of Be^{2+} is the maximum.

5. Atoms which have high values off irstionisation potential have
A. Large atomic radii
B. Low electronegativity
C. Have their octet filled
D. Low electron affinity
Sol: C

6. Correct arrangement of elements in respect to their size is
A. Rb> Cs > Na > K
B. Br > I >Cl> F
C. Mg <Ca<Sr< Ba
D. Na > A1 > Mg >Ca
Sol: C
Down the group the size goes on increasing. Across the period the size goes on decreasing.

7. Which is the smallest atom among the following atoms: Na, Al, Cl, S
A. Na
B. Al
C. Cl
D. S
Sol: C
Along a period, from left to right the atomic radius goes on decreasing. All the atoms mentioned belong to the 3rd period. Hencechlorine, the element on the extreme right of the period is the smallest atom

8. Among the halogens as you go from F to I, the electron affinity
A. fluctuates
B. increases
C. decreases
D. remains same
Sol: A
In general, along a group, electron affinity decreases from top to bottom. Hence option 3 is correct. However due to small size of 2porbitals of fluorine, the added electron is repelled and hence electron affinity of fluorine becomes less than that of chlorine So the

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

actual order is Cl> F> Br> I. Hence the option 1 which mentions the word fluctuates looks to be more appropriate

9. In the periodic table metals usually found as catalysts belong to the
A. s-block
B. p-block
C. d-block
D. f-block
Sol: D

10. When a cation is formed from a neutral atom, its size
A. increases
B. decreases
C. remains same
D. depends on the group to which the ion formed belongs
Sol: B
The number of protons remaining the same the effective nuclear charge increase. Hence the size of the ion becomes smaller than the size of the neutral atom

11. Smallest among these species is
A. lithium ion
B. lithium
C. helium
D. hydrogen
Sol: A

12. Assertion (A) SnCl2 is a reducing agent.
Reason (R) SnC12 reduces FeCl3 to FeCl2 and HgC12 to Hg.
A. Both (A) and (R) are true and (R) is the correct explanation of (A).
B. Both (A) and (R) are true but (R) is not the correct explanation of (A).
C. (A) is true but (R) is false.
D. (A) is false but (R) is true.
Sol: B

13. The second ionisation energy is always greater than the first. This is because
A. the effective nuclear charge increases
B. the number of shells decrease
C. the number of protons increase
D. all are correct
Sol: A
After the first ionisation, effective nuclear charge increases and the remaining electrons are more tightly held. Hence the energy required for the second ionisation will be more

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

14. Assertion (A) Sc (Z.= 21) is placed in d-block elements.
Reason (R) Last filling electron goes into 3d-suborbit.
A. Both (A) and (R) are true and (R) is the correct explanation of (A).
B. Both (A) and (R) are true but (R) is not the correct explanation of (A).
C. (A) is true but (R) is false.
D. (A) is false but (R) is true.
Sol: A

15. Which one of the following is iso-electronic with a fluoride ion?
A. Oxygen
B. Fluorine
C. Sodium
D. Neon
Sol: D
Fluoride ion has (9 + 1) = 10 electrons. Hence neon is iso-electronic with it

16. The Third ionisation potential of an element is found to be very high compound to the first and second ionisation potentials. Thevalency of the element may be
A. l
B. 2
C. 3
D. 4
Sol: B
The element contains two valence electrons. By the second ionisation the ion attaine stable inert goes configuration. Hence third ionisationpotentical is very high

17. Assertion (A) PbCl2 is more stable than PbC14.
Reason (R) PbC14 is powerful oxidising agent.
A. Both (A) and (R) are true and (R) is the correct explanation of (A).
B. Both (A) and (R) are true but (R) is not the correct explanation of (A).
C. (A) is true but (R) is false.
D. (A) is false but (R) is true.
Sol: B

18. In the following, the element with the highest ionisation energy is
A. $[Ne]3s^23p^3$
B. $[Ne]3s^23p^1$
C. $[Ne]3s^23p^4$
D. $[Ne]3s^23p^2$
Sol: A
15^{th} group elements with half-filled p - orbitals have high first ionisation potential. Half-filled p-orbitals have a configuration of p^3Hence option 1 is chosen

Transweb Educational Services Pvt Ltd
B -147, Sector -6 Noida, UP - 201301,
www.askiitians.com
Email: info@askiitians.com
Tel: 1800-2000-838

19. Assertion (A) $Na^+$and Al^{3+} are isoelectronic but the magnitude of ionic radius of $Al^{3+}$is less than that of Na^+.
Reason (R) The magnitude of effective nuclear charge of the outer shell electrons in $Al^{3+}$is greater than that in Na^+.

A. Both (A) and (R) are true and (R) is the correct explanation of (A).
B. Both (A) and (R) are true but (R) is not the correct explanation of (A).
C. (A) is true but (R) is false.
D. (A) is false but (R) is true.
Sol: A

20. The outer most electronic configuration of an element is ns^2np^3. In the periodic table the group to which the element belongs is
A. 2
B. 3
C. 5
D. 15
Sol: D
ns^2np^3 is the 3rd member of the p-block. The first group of the p-block is 13^{th}. Hence element with p^3configuration belongs to 15^{th} group