

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

1. Metallic cluster exhibited by metallic sodium is explained by

- A. diffusion of sodium ions
- B. oscillation of bonding electrons
- C. excitation of protons
- D. existence of body centered cubic lattice

Sol: B

2. Characteristic property of alkali metals is

- A. they are good reducing agents
- B. they are good oxidizing agent
- C. electro positive character decreases down the group
- D. high ionization potential

Sol: A

Due to low ionization potential they readily give electrons for reduction. Hence they act as reducing agents

3. Which process is used in the extraction of magnesium?

- A. Electrolysis of fused salts
- B. Electrolysis of aqueous solution
- C. Thermite process
- D. Smelting in a blast furnace

Sol: A

4. The correct order of reactivity of the following metals is

- A. $\text{Cu} > \text{Zn} > \text{K} > \text{Al}$
- B. $\text{K} > \text{Al} > \text{Zn} > \text{Cu}$
- C. $\text{Zn} > \text{Cu} > \text{Al} > \text{K}$
- D. $\text{K} > \text{Zn} > \text{Al} > \text{Cu}$

Sol: B

5. **Assertion (A)** Fr burns in air forming FrO_2^-
Reason (R) The larger alkali metal ions stabilize O_2^- (superoxide).
- 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
6. **Assertion (A)** K_2CO_3 cannot be prepared by Solvay process.
Reason (R) KHCO_3 being fairly soluble in water does not precipitate in carbonation tower.
- 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
7. Which one of the following property is not applicable to first group elements?
- A. crystallization in body centered cubic lattice
B. low ionization energy
C. low electro negativity
D. low atomic volume
- Sol: D
8. Which among the following will give a compound having the highest percentage ionic character?
Electro negativity values of Na, K, Cl and Br are 0.9, 0.8, 3.0 and 2.8 respectively
- A. K, Cl
B. Na, Cl
C. K, Br
D. Na, Br

Sol: A

9. Which configuration indicates elements with very high second ionization potential?

- A. ns^2
- B. ns^2
- C. ns^2np^5
- D. ns^2np^6

Sol: B

10. **Assertion (A)** Alkali metals form solid bicarbonates.

Reason (R) $LiHCO_3$ exists in aqueous solution.

- 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

11. **Assertion (A)** The metals of group 2 (except Be) form ionic compounds.

Reason (R) Electropositive character and the reducing property increase on moving down the group.

- 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

12. Li does not resemble other alkali metals due to

- A. small size of Li^+ ion
- B. high polarizing power
- C. high ionization energy and low electropositive nature
- D. all the above

Sol: D

13. **Assertion (A)** Li is used in photocells.

Reason (R) Cs has lower ionization energy than Li.

- 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: D

14. The oxide of an element with its outermost shell electronic configuration of ns_1 and ns_2 with no d electron in the penultimate shell has
- A. basic character
 - B. neutral character
 - C. amphoteric nature
 - D. acidic character
- Sol: A
15. **Assertion (A)** The superoxide MO_2 contains the paramagnetic ion O_2^-
Reason (R) O_2^- is stable in presence of large cations as K, Rb, Cs.
- 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
16. The metal which cannot displace hydrogen from water is
- A. sodium
 - B. zinc
 - C. magnesium
 - D. copper
- Sol: D
17. Abnormal decrease in the ionisation energy from Na to K is due to
- A. sudden increase in the electro negativity value
 - B. abnormal rise in the size of the potassium atom
 - C. presence of body centered cubic lattice for alkali metals
 - D. none of these
- Sol: B
18. Compounds of alkaline earth metal salts have less solubility than alkali metal salts. This is due to
- A. alkaline earth metals are covalent in character
 - B. alkaline earth metals are basic
 - C. higher lattice energy for alkaline earth metal salts
 - D. higher lattice energy for alkali metals salt
- Sol: C

19. The presence of a lone electron in the valence shell of alkali metals account for

- A. low ionization potential
- B. weak metallic bond
- C. low melting points
- D. all the above

Sol: D

20. **Assertion (A)** Among the alkali metals, lithium salts exhibit the least electrical conductance in aqueous solutions.

Reason (R) Smaller the radius of the hydrated cation, lower is the electrical conductance in aqueous solutions.

- 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: C