

TDC Part I
Paper I, Group B
Inorganic Chemistry



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TOPIC:- S- block Practice Question .

S -BLOCK ELEMENTS

Question and answers carrying 1 mark

1. What are s- block elements?

s-block elements are those in which the last electron enters the outermost s-orbital.

As the s-orbital can accommodate only two electrons, two groups (1 & 2) belong to the s-block of the Periodic Table.

2. Name the elements present in the 1st Group of the Periodic Table

lithium, sodium, potassium, rubidium, caesium and francium. They are collectively known as the *alkali metals*.

3. Why I group elements are called alkali metals ?

These are called so because they form hydroxides on reaction with water which are strongly alkaline in nature.

4. Name the elements present in the 2nd Group of the Periodic Table:

beryllium, magnesium, calcium, strontium, barium and radium. These elements with the **exception of beryllium** are commonly known as the *alkaline earth metals*.

5. Why II group elements are called alkaline earth metals ?

These are called so because their oxides and hydroxides are alkaline in nature and these metal oxides are found in the earth's crust.

6. What is the reason for the diagonal relationship ?

Diagonal relationship is due to the similarity in ionic sizes and /or charge/radius ratio of the elements.

7. Which is smaller in size between a metal ion and its parent atom?

The monovalent ions (M^+) are smaller than the parent atom.

8. Which group elements show very low ionization enthalpy in the periodic table?

First group elements (alkali metals)

9. How the ionization enthalpy varies in alkali metals

Ionization enthalpy decrease down the group from Li to Cs.

10. Arrange the first group elements in the decreasing order of Hydration Enthalpy

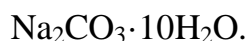
The hydration enthalpies of alkali metal ions decrease with increase in ionic sizes.



11. why Li salts are hydrated?

Li^+ has maximum degree of hydration and for this reason lithium salts are mostly hydrated, e.g., $LiCl \cdot 2H_2O$

12. Write the chemical composition of washing soda.



13. Give reason for the higher melting point and boiling point of alkali earth metals than alkali metals.

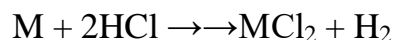
The melting and boiling points of these metals are higher than the corresponding alkali metals due to smaller sizes.

14. Why Be and Mg do not impart colour to the flame ?

The electrons in beryllium and magnesium are too strongly bound to get excited by flame. Hence, these elements do not impart any colour to the flame.

15. Name the gas liberated when alkali metals react with dil acid?

The alkaline earth metals readily react with acids liberating dihydrogen gas .



16. Name the alkaline earth metal used in radio therapy.

Radium salts are used in radiotherapy, for example, in the treatment of cancer.

17. Give reason .the compounds of alkaline earth metals are less ionic than alkali metals

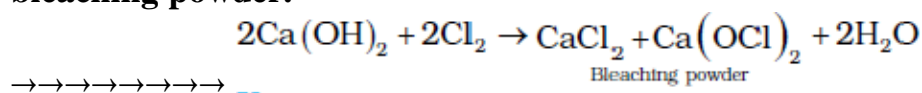
This is due to increased nuclear charge and smaller size.

18. How is Calcium Hydroxide (Slaked lime), Ca(OH)₂ Prepared?

Calcium hydroxide is prepared by adding water to quick lime, CaO.

19. How milk of lime reacts with chlorine?

Milk of lime reacts with chlorine to form hypochlorite, a constituent of **bleaching powder**.



20. What happens when Calcium carbonate is heated to 1200 K?

When heated to 1200 K, it decomposes to evolve carbon dioxide.

