

**CLASS XI**  
**THE s-BLOCK ELEMENTS**

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**ONE MARK QUESTIONS**

- 1 Explain giving reasons: (Each carries one mark)
- Lithium is not used in photoelectric cells.
  - Magnesium does not impart colour to flame.
  - Potassium carbonate cannot be prepared by Solvay process.
  - Lithium carbonate is stored in an atmosphere of  $\text{CO}_2$ .
  - Stability of group II carbonates increase down the group.
  - Aqueous solution of  $\text{Na}_2\text{CO}_3$  is alkaline to litmus.
  - $\text{BeO}$  is insoluble in water, while  $\text{BaO}$  is soluble.
  - $\text{Be}$  is kinetically inert to oxygen and water.
  - Plaster of Paris is used to set fractures bones.
  - Gypsum is added to cement.
  - $\text{CsI}$  is insoluble in water.

**TWO MARKS QUESTIONS**

- Draw the structures of  $\text{BeCl}_2$  in the vapour state below 1200 K and in the solid state.
- Illustrate the anomalous behaviour of Li and Be.
- Illustrate the diagonal relationship between Be-Al
- Give reasons
  - Mobilities of alkali metal cations increase down the group.
  - Sodium does not form superoxide
- Why is  $\text{MgSO}_4$  soluble in water whereas  $\text{BaSO}_4$  is insoluble in water?
- Explain why group I metals are not be obtained by chemical reduction of their salts ?

**THREE MARKS QUESTIONS**

- What happens when (give balanced equations)
  - $\text{CO}_2$  is passed through limewater; in excess.
  - Calcium nitrate is heated
  - Sodium nitrate is heated
- Give balanced chemical equations for the following

- a) Chlorine reacts with slaked lime
- b)  $\text{BeCl}_2$  is reacted with lithium aluminium hydride.
- c) Hydrated magnesium chloride is heated.

3 Explain giving reasons

- a)  $\text{LiCl}$  is hydrated while  $\text{NaCl}$  is not.
- b)  $\text{LiF}$  is insoluble in water.
- c) The  $E^0$  value of  $\text{Li}$  is the most negative among alkali metals.

**VALUE BASED QUESTION (FOUR MARKS)**

- 1 Quicklime is prepared by thermal decomposition of limestone in tall furnaces called kiln. During such an operation, the top of the Chimney of the kiln was closed. After one week when the kiln was opened it was observed that very little lime was formed. The workers reported the poor result to the Production engineer who suggested them to increase the height of the chimney. But there was no improvement in the production of lime. Ultimately the production engineer approached his former chemistry professor and narrated the problem. The professor suggested him to keep the top of the chimney opened. This helped.
- a) Represent the thermal decomposition of lime stone by a chemical equation.
  - b) Why was the production of lime not satisfactory when the top of the chimney was closed?
  - c) How did the suggestion of the professor help in the improvement of the production of lime?
  - d) Mention the value associated with this incidence.

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