

**CBSE TEST PAPER 04**  
**CLASS XI CHEMISTRY (The s-Block Elements)**

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**General Instruction:**

- All questions are compulsory.
  - Marks are given along with each question.
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1. Name the elements present in Group 2. [2]
2. The atomic and ionic radii of alkaline earth metals are smaller than those of the corresponding alkali metals. Explain why? [2]
3. Why do alkaline earth metals have low ionization enthalpy? [1]
4. The second ionization enthalpy of calcium is more than the first and yet calcium forms  $\text{CaCl}_2$  and not  $\text{CaCl}$ . Give reasons [2]
5. Why alkaline earth metals have greater tendency to form complexes than do the alkali metals. [1]
6. Name the metal amongst alkaline earth metals whose salt do not impart colour to a non-luminous flame. [2]
7. Compounds of alkaline earth metals are more extensively hydrated than those of alkali metals. Give reason. [1]
8. The melting and boiling points of alkaline earth metals are higher than alkali metals. Give reason. [1]
9. Which member of the alkaline earth metals family has: (i) least reactivity (ii) lowest density (iii) highest boiling point (iv) maximum reduction potential [2]
10. The alkaline earth metals are called s – block elements. Give reasons. [2]

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**[ANSWERS]**

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Ans 1. Beryllium, Magnesium, Calcium, Strontium, Barium and Radium.

Ans 2. The atomic and ionic radii of the alkaline earth metals are smaller than those of the corresponding alkali metals in the same period because of the increased nuclear charge in these elements.

Ans 3. The alkaline earth metals have low ionization enthalpies due to fairly large size of the atoms.

Ans 4. The higher value of second ionization enthalpy of calcium is more than compensated by the stronger lattice enthalpy of  $\text{CaCl}_2$ . Therefore formation of  $\text{CaCl}_2$  becomes more favorable than  $\text{CaCl}$  energetically.

Ans 5. Because of smaller size and higher positive charge, the alkaline earth metals have a higher tendency to form complexes than do the alkali metals.

Ans 6. Beryllium and magnesium do not impart colour to a non-luminous flame.

Ans 7. The hydration enthalpies of alkaline earth metal ions are larger than those of alkali metal ions because of smaller size hence the compounds of alkaline earth metals are more hydrated than those of alkali metals.

Ans 8. The melting and boiling points of alkaline earth metals are higher than the corresponding alkali metals due to smaller sizes.

Ans 9. (i) Be (ii) Ca (iii) Be (iv) Be

Ans 10. Alkaline earth metals are called s – block elements because the last electron in their electronic configuration occupies the s – orbital of their valence shells.