

**CBSE TEST PAPER 01**  
**CLASS XI CHEMISTRY (The s-Block Elements)**

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**General Instruction:**

- All questions are compulsory.
  - Marks are given along with their questions.
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1. Why is Group I elements known as the most electropositive element? [1]
2. Why is lithium salts mostly hydrated? [1]
3. Why are melting and boiling points of alkali metals low? [1]
4. What do you mean by diagonal relationship in the periodic table? [1]
5. Why is lithium kept under kerosene oil? [1]
6. Why are lithium halides covalent in nature? [2]
7. What makes lithium show properties different from rest of the alkali metals? [2]
8. Why do alkali metals and salts impart color to an oxidizing flame? [2]
9. What type of oxide is made by sodium? [2]
10. Why is potassium lighter than sodium? [2]
11. Name the lightest metal. [1]

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**[ANSWERS]**

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Ans 1. The loosely held s-electron in the outermost valence shell of these elements makes them the most electropositive metals. They readily lose electron to give monovalent  $M^+$  ions and form a stable noble gas configuration.

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

Ans 3. The melting and boiling points of the alkali metals are low indicating weak metallic bonding due to the presence of only a single valence electron in them.

Ans 4. The diagonal relationship is due to the similarity in ionic sizes and /or charge / radius ratio of the elements.

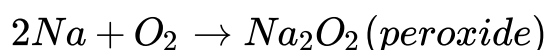
Ans 5. Because of their high reactivity towards air and water, they are normally kept in kerosene oil.

Ans 6. Lithium halides are covalent because of the high polarization capability of lithium ion. The  $Li^+$  ion is very small in size and has high tendency to distort electron cloud around the negative halide ion.

Ans 7. Lithium is a small atom and it forms smaller  $Li^+$ . As a result, it has very high charge to radius ratio. This is primarily responsible for the anomalous behavior of lithium.

Ans 8. This is because the heat from the flame excites the outer orbital electron to a higher energy level. When the excited electron comes back to the ground state, there is emission of radiation in the visible region.

Ans 9. Sodium mostly form peroxide when reacted with oxygen



Ans 10. Potassium is lighter than sodium probably because of an unusual increase in atomic size of potassium. Thus density (mass per unit volume) for Potassium is lower than for sodium.

Ans 11. Lithium is the Lightest known metal (density  $0.534g\text{ (cm}^3\text{)}$ )