# SHORT QUESTIONS

**Q.1 How water rises in plants?**

**Ans.** Capillary action is the process by which water rises up from the roots of plants to leaves. This property is vital for the land plants.

**Q.2 Which forces are responsible for dissolving polar substances in water?**

**Ans.** Hydrogen bonding is responsible for dissolving polar substances in water.

**Q.3 Why non-polar compounds are insoluble in water?**

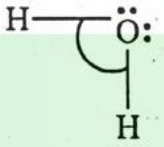
**Ans.** The non-polar compounds do not have polar ends or bonds and are not attracted by water molecules. Therefore, non-polar compounds do not dissolve in water.

**Example:**

- Benzene
- Ether
- Octane

**Q.4 How water dissolves sugar and alcohols?**

**Ans.** Because of two O–H bonds and two lone pairs, one $H_2O$ molecule can form hydrogen bonding with four other $H_2O$ molecules, which are arranged tetrahedral around the $H_2O$ molecules.



This unique behaviour of water enables it to dissolve many polar non-ionic compounds having hydroxyl group (-OH) like alcohol and sugar by forming hydrogen bonds with them.

**Q.5 How limestone dissolves in water?**

**Ans.** The water which have carbon dioxide dissolved in it, convert the insoluble lime stone (calcium carbonate) into soluble calcium bicarbonate. In this way, lime stone dissolves in water.

**Q.6 Differentiate between soft and hard water.**

**Ans.**

| Soft Water | Hard Water |
|---|---|
| Soft water is that which produced good lather with soap. | Hard water is that which does not produce lather with soap. |

**Q.7 What are the causes of hardness in water?**

**Ans.** The rain water while coming down absorbs carbon dioxide from the atmosphere. The water mixed with carbon dioxide, when passes through the beds of the soil, converts insoluble carbonates of calcium and magnesium into soluble bicarbonates. It may also dissolve chlorides and sulphates of calcium and magnesium.

$$CaCO_3 + CO_2 + H_2O \rightarrow Ca(HCO_3)_2$$
$$MgCO_3 + CO_2 + H_2O \rightarrow Mg(HCO_3)_2$$

**Q.8 What are the effects of temporary hardness in water?**

**Ans.**

- Temporary hard water consumes a large amount of soap in washing purposes
- It also causes stomach disorder.

**Q.9 Mention the disadvantages of detergents.**

**Ans.** Detergents have a major disadvantage over the soap as some of the detergents are non-biodegradable (cannot be decomposed by micro-organisms like bacteria). When house hold water containing these detergents discharged in streams, ponds, lakes and reverse. it causes water pollution.