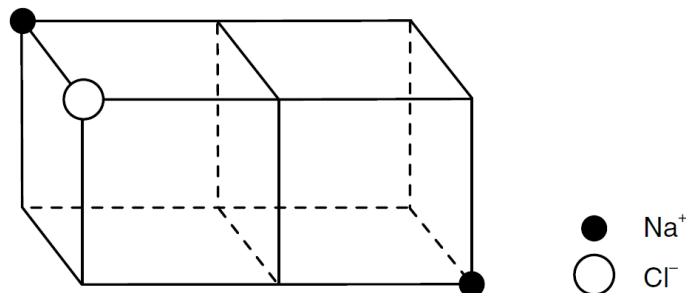


Quiz (Giant Ionic Structure)

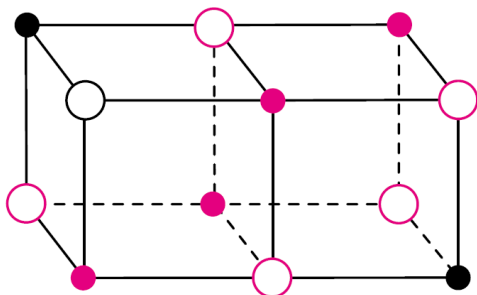
1. The following diagram shows an incomplete arrangement of ions in the structure of sodium chloride crystal.



- Complete the diagram by drawing the missing ions.
 - What is the type of bonding between sodium ions and chloride ions?
 - Does sodium chloride conduct electricity in the solid state? Explain your answer.
 - Explain why sodium chloride has a high melting point.
2. Answer the following questions concerning caesium chloride.
- What type of structure does caesium chloride have?
 - What is the type of bonding between the caesium ions and chloride ions in caesium chloride?
 - Is caesium chloride a high-melting or low-melting solid? Explain briefly.
 - Is caesium chloride soluble in (i) water (ii) heptane (a non-aqueous solvent)? Explain briefly.
 - Does caesium chloride conduct electricity in the solid state?

Suggested Answer

1. (a)



(b) Ionic bonding

(c) No. This is because the ions are not mobile in the solid state.

(d) This is because a lot of heat energy is required to overcome the strong ionic bonds between ions during melting.

2. (a) Giant ionic structure

(b) Ionic bonding

(c) Caesium chloride is a high melting solid. This is because a lot of energy is needed to break the strong ionic bonds between the ions during melting.

(d) Caesium chloride is soluble in water. This is because when dissolved in water, strong attraction exists between ions in caesium chloride and water molecules. However, there is no such attraction between ions in caesium chloride and heptane molecules.

(e) No