- 1 Which of the following equations has the correct state symbols for the reaction of dilute hydrochloric acid with magnesium oxide?
 - \square A MgO(s) + 2HCl(aq) \rightarrow MgCl₂(s) + H₂O(l)
 - $\boxtimes \textbf{B} \text{MgO}(\textbf{s}) + 2\text{HCI}(\textbf{aq}) \rightarrow \text{MgCI}_2(\textbf{aq}) + \text{H}_2\text{O}(\textbf{I})$
 - $\square C MgO(s) + 2HCI(I) \rightarrow MgCI_2(s) + H_2O(I)$
 - $\square D MgO(s) + 2HCI(I) \rightarrow MgCI_2(aq) + H_2O(I)$

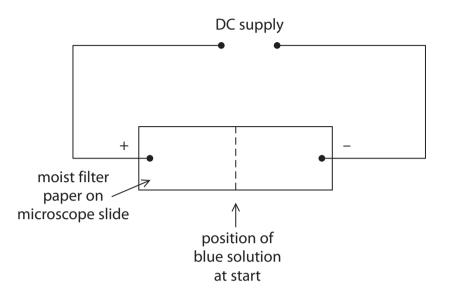
(Total for Question = 1 mark)

2 Which of the following observations provides the best evidence for the presence of ionic bonding in an unknown substance?

The substance conducts electricity

- **A** in the solid state.
- **B** in the solid state and in aqueous solution.
- **C** in the solid state and when molten.
- **D** when molten but not in the solid state.

3 A spot of blue solution was placed in the centre of a piece of moist filter paper supported on a microscope slide and the following experiment was carried out.



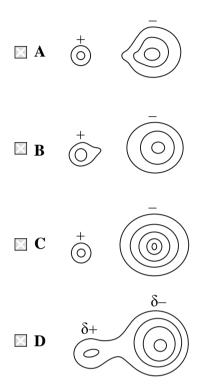
After some time, a blue colour moved towards the negative terminal, but no change was visible in the region of the positive terminal. This is because

- A the negative ions in the solution were colourless and the positive ions were blue.
- **B** the positive ions in the solution were colourless and the negative ions were blue.
- C the negative ions in the solution had not moved but the positive ions had moved.
- **D** the positive ions in the solution had not moved but the negative ions had moved.

(Total for Question = 1 mark)

- 4 In which of the following compounds is the **anion** most polarized?
 - 🖾 A LiF
 - 🛛 B Lil
 - 🖾 C KF
 - D KI

5 Which of these electron density maps best represents the bonding in the compound lithium iodide, LiI?



(Total for Question = 1 mark)

6 Metals are good conductors of electricity because

- A metal atoms are arranged in a regular lattice.
- **B** metal ions are very close to each other.
- **C** metal ions are free to move through the lattice.
- **D** electrons are free to move through the lattice.

- **7** Which of the following statements is evidence for the existence of ions in ionic compounds?
 - A lonic compounds, in the solid state, conduct electricity.
 - **B** When **any** ionic compound in solution is electrolysed, the migration of ions can be seen.
 - **C** In electron density maps for ionic compounds, there is no single line representing electron density that surrounds both cations and anions.
 - **D** In electron density maps for ionic compounds, there are some single lines representing electron density that surround both cations and anions.

(Total for Question = 1 mark)

- 8 Metals usually have high melting temperatures and boiling temperatures because there are
 - A strong attractions between the ions.
 - **B** strong attractions between the delocalised electrons.
 - \square C strong attractions between the ions and the delocalised electrons.
 - **D** strong intermolecular forces.

(Total for Question 1 mark)

- 9 The bonding in magnesium oxide, MgO, is
 - \square A ionic.
 - **B** metallic and ionic.
 - \square C ionic and covalent.
 - **D** metallic and covalent.