1 Which of the following equations has the correct state symbols for the reaction of dilute hydrochloric acid with magnesium oxide?

☒ **A** MgO**(s)** + $2HCl$**(aq)** → $MgCl_2$**(s)** + H_2O**(l)**

☒ **B** MgO**(s)** + $2HCl$**(aq)** → $MgCl_2$**(aq)** + H_2O**(l)**

☒ **C** MgO**(s)** + $2HCl$**(l)** → $MgCl_2$**(s)** + H_2O**(l)**

☒ **D** MgO**(s)** + $2HCl$**(l)** → $MgCl_2$**(aq)** + H_2O**(l)**

(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.

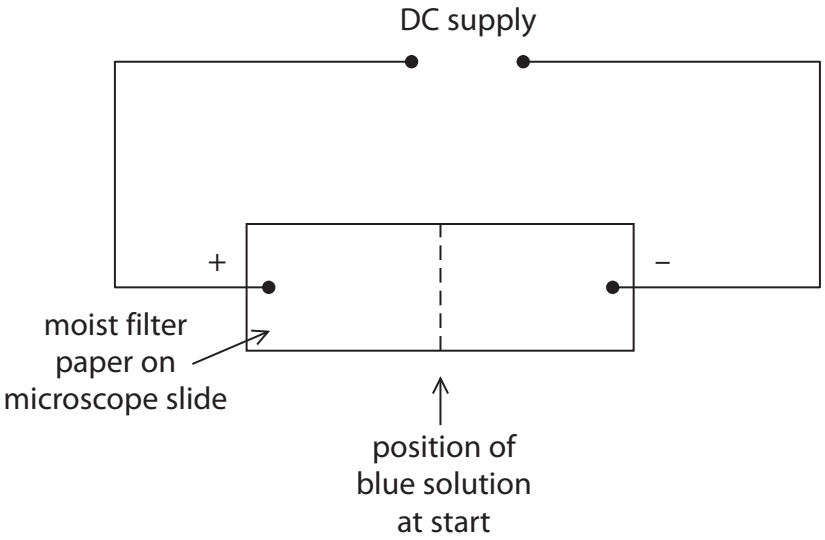
☒ **B** in the solid state and in aqueous solution.

☒ **C** in the solid state and when molten.

☒ **D** when molten but not in the solid state.

(Total for Question = 1 mark)

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

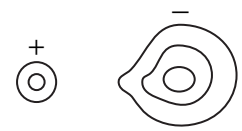
☒ **B** LiI

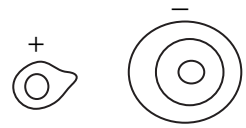
☒ **C** KF

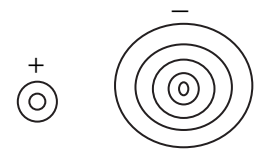
☒ **D** KI

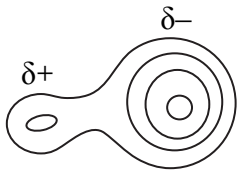
(Total for Question = 1 mark)

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

☒ **A** 

☒ **B** 

☒ **C** 

☒ **D** 

(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.

(Total for Question = 1 mark)

7 Which of the following statements is evidence for the existence of ions in ionic compounds?

☒ **A** Ionic 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.

☒ **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

☒ **A** ionic.

☒ **B** metallic and ionic.

☒ **C** ionic and covalent.

☒ **D** metallic and covalent.

(Total for Question = 1 mark)