

Solutions

Each answer shows the steps, then the **result**.

2.1

- metallic bonding is the **electrostatic attraction** between **positive metal ions** and a **sea of delocalised electrons**

2.2

- charge is carried by the **delocalised (free) electrons**

3.1 B

- layers of **positive ions can slide** over each other
- A would make the metal weak; C is molecular; D would not conduct

3.2

(a)

- copper has **delocalised electrons** that are free to move
- they **carry charge** through the metal

(b)

- layers of positive ions can **slide** over each other
- metallic bonding is not broken, so the metal **changes shape** instead of breaking

3.3

- strong electrostatic attraction** between positive ions and delocalised electrons
- a lot of energy is needed to overcome it, so the **melting point is high**