Solutions

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

2.1

- in the solid the ions are **locked in place** and cannot move to carry the charge

2.2

- cathode (negative): **lead**
- anode (positive): **bromine**

3.1 B

- at the cathode, positive ions **gain electrons (reduction)**
- A is oxidation at the anode; C and D are wrong

3.2

(a)

- anode: **oxygen**
- cathode: **hydrogen**
- volume ratio $H_2 : O_2 = \mathbf{2} : \mathbf{1}$

(b)

- $2\mathbf{H}^+ + 2e^- \rightarrow \mathbf{H}_2$
- H^+ is lower than sulfate in the discharge order, so sulfate **stays in solution**

3.3

- make the spoon the **cathode**
- make **silver** the anode
- use a solution containing **silver ions** as the electrolyte