

**22** What happens when iodine solution is added to a solution of sodium bromide?

- A** A reaction occurs without changes in oxidation state.
- B** Bromide ions are oxidised; iodine atoms are reduced.
- C** Bromide ions are reduced; iodine atoms are oxidised.
- D** No reaction occurs.

**23** Which statement is correct?

- A** Nitrogen is unreactive due to the absence of lone pairs in the molecule.
- B** Aqueous ammonia contains both  $\text{NH}_3(\text{aq})$  and  $\text{NH}_4^+(\text{aq})$ . The  $\text{NH}_4^+(\text{aq})$  ion is a Brønsted–Lowry acid.
- C** High temperatures are needed to supply the energy to break the strong double bonds in nitrogen molecules when they react.
- D** Atmospheric  $\text{SO}_2$  reacts with unburnt hydrocarbons to form a component of photochemical smog.