**1.3.2 Exercise 2 – Reactions of Group 2 compounds**

**1. Oxides with water**

a) Write an equation, with state symbols, to show the reaction of calcium oxide with water.

b) Predict the approximate pH of the resulting solution and describe how you could test this.

**2. Thermal decomposition of carbonates**

a) Write an equation, with state symbols, to show the thermal decomposition of magnesium carbonate.

b) State whether the decomposition of calcium carbonate would be faster or slower than this.

c) Describe a test you could carry out to confirm the identity of the gas.

d) Describe what would happen to the mass of solid during this reaction.

**3. Oxides, hydroxides and carbonates with acids**

a) Write nine equations, with state symbols, to show the reactions of barium oxide, barium hydroxide and barium carbonate with each of hydrochloric acid, sulphuric acid and nitric acid.

b) What remains in solution at the end of these reactions?

c) Describe what you would see if a Group 2 oxide or hydroxide reacts with an acid.

d) Describe what you would see if a Group 2 carbonate reacts with acid.

e) State how your observations would be different if you used calcium instead of strontium.

4. **Uses of group 2 compounds**

a) State a commercial use of magnesium hydroxide and give a reason for its use in this way.

b) State a commercial use of calcium hydroxide and give a reason for its use in this way.

5. Draw a flow chart to show how the following substances can be converted into each other:

 calcium; calcium oxide; calcium carbonate; calcium hydroxide; calcium salts