

## Unit 10: Group 2

### Similarities and trends in the properties of the Group 2 metals, magnesium to barium, and the

#### Topical Question No: 1

- 13 When dealing with a spillage of metallic sodium it is important that no toxic or flammable products are formed.

Which material should be used if there is a spillage of metallic sodium?

- A dilute hydrochloric acid
- B ethanol
- C sand
- D water spray

#### Topical Question No: 2

- 14 Why does barium react more rapidly with cold water than magnesium does?

- A Barium atoms are larger and form ions more easily than magnesium atoms.
- B Barium floats on the surface of the water but magnesium sinks in the water.
- C Barium hydroxide is less soluble than magnesium hydroxide.
- D The sum of the 1st and 2nd ionisation energies of barium is more than that for magnesium.

#### Topical Question No: 3

- 15 A solution contains both  $\text{Mg}^{2+}(\text{aq})$  and  $\text{Sr}^{2+}(\text{aq})$  at the same concentration.

The solution is divided into two equal portions. Aqueous sodium hydroxide is added dropwise to one portion. Dilute sulfuric acid is added dropwise to the other portion.

Which row is correct?

	precipitate seen first when $\text{NaOH}(\text{aq})$ is added	precipitate seen first when $\text{H}_2\text{SO}_4(\text{aq})$ is added
A	magnesium hydroxide	magnesium sulfate
B	magnesium hydroxide	strontium sulfate
C	strontium hydroxide	magnesium sulfate
D	strontium hydroxide	strontium sulfate

### Topical Question No: 4

- 13 In which row of the table are all statements comparing the compounds of magnesium and barium correct?

	solubility of hydroxides		solubility of sulfates	
	solubility of magnesium hydroxide	solubility of barium hydroxide	solubility of magnesium sulfate	solubility of barium sulfate
<b>A</b>	higher	lower	higher	lower
<b>B</b>	higher	lower	lower	higher
<b>C</b>	lower	higher	higher	lower
<b>D</b>	lower	higher	lower	higher

### Topical Question No: 5

- 34 Solids **W**, **X**, **Y** and **Z** are compounds of two different Group II metals. Some of their applications are described below.

Compound **W** is used as a refractory lining material in kilns.

Compound **X** is used as a building material. It can also be heated in a kiln to form compound **Y**. When **Y** is hydrated, it forms compound **Z** which is used agriculturally to treat soils.

Which statements about these compounds are correct?

- 1 Adding **W** to water has less effect on pH than adding **Y**.
- 2 Adding **Z** to soil increases the pH of the soil.
- 3 The metallic element in **Y** reacts with cold water more quickly than the metallic element in **W**.

### Topical Question No: 6

- 13 When equal volumes of saturated solutions of barium hydroxide and calcium hydroxide are mixed, a white precipitate, **Y**, forms. The mixture is filtered and carbon dioxide is bubbled through the filtrate, producing a second white precipitate, **Z**.

What are **Y** and **Z**?

	<b>Y</b>	<b>Z</b>
<b>A</b>	Ba(OH) <sub>2</sub>	Ca(OH) <sub>2</sub>
<b>B</b>	Ba(OH) <sub>2</sub>	CaCO <sub>3</sub>
<b>C</b>	Ca(OH) <sub>2</sub>	BaCO <sub>3</sub>
<b>D</b>	Ca(OH) <sub>2</sub>	Ba(OH) <sub>2</sub>

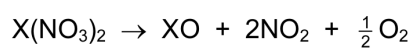
*Topical Question No: 7*

**15** When calcium is burnt in oxygen, what colour is the flame?

- A** green
- B** red
- C** white
- D** yellow

*Topical Question No: 8*

**17** Group II nitrates undergo thermal decomposition according to the following equation.



Which Group II nitrate requires the highest temperature to bring about its thermal decomposition?

- A** barium nitrate
- B** calcium nitrate
- C** magnesium nitrate
- D** strontium nitrate

*Topical Question No: 9*

**12** When barium is burnt in oxygen, what colour is the flame?

- A** green
- B** orange
- C** red
- D** white

## Answer Key

1. Error
2. Error
3. Error
4. Error
5. Error
6. Error
7. Error
8. Error
9. Error