

19 The trends seen in Group 2 can be used to predict the properties of radium and its compounds.

Which statement is correct?

- A** Radium has the highest second ionisation energy of the elements in Group 2.
B Radium hydroxide is the least soluble of the hydroxides of the elements in Group 2.
C Radium carbonate has the lowest thermal stability of the carbonates of the elements in Group 2.
D Radium reacts faster with water than the other elements in Group 2.

20 Equal masses of CaCO_3 , $\text{Ca}(\text{NO}_3)_2$, BaCO_3 and $\text{Ba}(\text{NO}_3)_2$ are thermally decomposed. The volume of gas produced in each experiment is measured under the same conditions.

Which compound will produce the greatest volume of gas?

- A** CaCO_3 **B** $\text{Ca}(\text{NO}_3)_2$ **C** BaCO_3 **D** $\text{Ba}(\text{NO}_3)_2$

19 When heated, magnesium nitrate decomposes.

Which equation for the thermal decomposition of magnesium nitrate is correct?

- A** $\text{Mg}(\text{NO}_3)_2 \rightarrow \text{MgO} + \text{NO}_2 + \text{NO} + \text{O}_2$
B $2\text{Mg}(\text{NO}_3)_2 \rightarrow 2\text{MgO} + 4\text{NO} + 3\text{O}_2$
C $2\text{Mg}(\text{NO}_3)_2 \rightarrow 2\text{MgO} + 4\text{NO}_2 + \text{O}_2$
D $3\text{Mg}(\text{NO}_3)_2 \rightarrow \text{Mg}_2\text{N}_3 + \text{MgO} + 3\text{NO} + 7\text{O}_2$

20 R is the aqueous solution of an ionic compound.

- A white precipitate is formed when R is added to $\text{Sr}(\text{NO}_3)_2(\text{aq})$.
- No visible reaction is seen when R is added to dilute $\text{HNO}_3(\text{aq})$.

What is the anion present in compound R?

- A** Cl^- **B** SO_4^{2-} **C** HCO_3^- **D** CO_3^{2-}

18 Caesium and barium are in Period 6 of the Periodic Table.

Which row is correct?

	the larger ionic radius	the higher melting point
A	Ba^{2+}	barium
B	Ba^{2+}	caesium
C	Cs^+	barium
D	Cs^+	caesium

19 Magnesium nitrate, $\text{Mg}(\text{NO}_3)_2$, will decompose when heated to give a white solid and a mixture of gases. One of the gases released is oxygen.

29.7 g of anhydrous magnesium nitrate is heated until no further reaction takes place.

Which mass of oxygen is produced?

- A** 3.2g **B** 6.4g **C** 12.8g **D** 19.2g

20 Which row shows the trends in the named properties going down the Group 2 nitrates?

	thermal stability	volume of gas produced, measured at room conditions, when 1.0 g of anhydrous solid nitrate is thermally decomposed
A	increases	increases
B	increases	decreases
C	decreases	increases
D	decreases	decreases