

Paper 1

Questions are applicable for both core and extended candidates

- 1 The relative atomic mass, A_r , of an element is the average mass of the isotopes of that element compared to another particle.

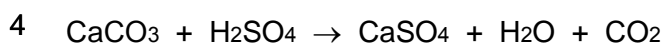
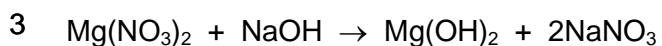
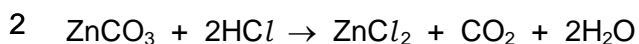
Which particle is used for this comparison?

- A a proton
- B an atom of ^{12}C
- C an atom of ^{40}Ca
- D an atom of ^1H

- 2 What is the relative formula mass of ammonium nitrate, NH_4NO_3 ?

- A 80 B 108 C 122 D 150

- 3 Which equations are balanced?



- A 1 and 2 B 1 and 4 C 2 and 3 D 3 and 4

- 4 A compound with the formula XO_2 has a relative formula mass of 64.

What is X?

- A cadmium
- B copper
- C gadolinium
- D sulfur

- 5 The relative atomic mass, A_r , of an element is determined by comparing the mass of one atom of the element with the mass of one atom of element Q.

What is Q?

- A carbon
- B chlorine
- C hydrogen
- D oxygen

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

- 6 What is the relative molecular mass, M_r , of sulfur dioxide?
- A** 24 **B** 32 **C** 48 **D** 64

- 7 The equation for the thermal decomposition of sodium hydrogencarbonate is shown.



The M_r of sodium hydrogencarbonate, NaHCO_3 , is 84.

The M_r of sodium carbonate, Na_2CO_3 , is 106.

In an experiment, 2.1 g of sodium hydrogencarbonate is heated but not all of it decomposes. All of the carbon dioxide is collected and measured at room temperature and pressure. The total volume of carbon dioxide produced is 0.21 dm^3 .

The volume of 1 mole of a gas at room temperature and pressure is 24 dm^3 .

Which statement is correct?

- A** The mass of sodium carbonate produced is 0.93 g.
B The mass of sodium carbonate produced is 1.33 g.
C The percentage yield of carbon dioxide is 10%.
D The percentage yield of carbon dioxide is 35%.

8 Which information is needed to calculate the relative atomic mass of an element?

- A The total number of protons and neutrons in the most abundant isotope.
- B The nucleon numbers and the total number of isotopes.
- C The mass number and abundance of each of its isotopes.
- D The atomic number and abundance of each of its isotopes.

9 The relative atomic mass, A_r , of an element is determined by comparing the mass of one atom of the element with the mass of one atom of element Q.

What is Q?

- A carbon
- B chlorine
- C hydrogen
- D oxygen