2.20 Moles, Formulae and Equations: 10-minute Pack

AQA 8464 · Calculator allowed · about 10 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Complete each word equation.

(a) magnesium + oxygen -> _____ **(1)**

(b) calcium carbonate -> _____ + _____ (on strong heating) **(1)**

(Total for Question 1 is 2 marks)

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2 Explain, in terms of atoms, why the total mass inside the flask stays the same during the reaction.

(Total for Question 2 is 2 marks)

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3 Calculate the mass of magnesium oxide produced.

(Total for Question 3 is 3 marks)

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4 Calculate the relative formula mass (Mr) of each compound.

(a) Calculate the Mr of calcium carbonate, $CaCO_3$. **(1)**

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(b) Calculate the Mr of sodium hydroxide, NaOH. **(1)**

.....

(Total for Question 4 is 2 marks)

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Mark scheme · 2.20 Moles, Formulae and Equations: 10-minute Pack

Question 1

(a) magnesium oxide (cao) **B1**

(a) Answer: magnesium oxide

(b) calcium oxide and carbon dioxide (both needed) **B1**

(b) Answer: calcium oxide + carbon dioxide

Question 2

no atoms are created or destroyed in the reaction (oe) **B1**

because the flask is sealed/closed, no atoms (mass) can enter or leave the system (oe) **B1**

Answer: No atoms are created or destroyed in the reaction, and because the flask is sealed, no atoms can enter or leave, so the total mass stays the same.

Question 3

moles Mg = 3.0/24 = 0.125 mol **M1**

correct use of the 1:1 mole ratio between Mg and MgO **M1**

5.0 g cao (accept awrt 5.0 g) **A1**

Answer: 5.0 g

Question 4

(a) 100 cao (40 + 12 + 3*16) **B1**

(a) Answer: Mr($CaCO_3$) = 100

(b) 40 cao (23 + 16 + 1) **B1**

(b) Answer: Mr(NaOH) = 40

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