



9H Using chemistry...mark scheme

Assessment for learning...year 9 (level 3-6)

Question 1:

- (a) (i) CO_2 or gas was given off 1
*do not accept 'CO₂ burned off' or
'carbon and oxygen given off'*
- (ii) any **one** from 1
 - no further reaction took place
 - all the copper carbonate had already broken down
 - CuO does **not** break down with heat*accept 'all the carbon has gone'*
accept 'no more CO₂ or gas was given off'
accept 'CuO is unaffected by heat'
accept 'no more carbon to form carbon dioxide'
do not accept 'no more carbon to react with oxygen'
- (b) (i) the powder contains oxygen as well as the magnesium 1
accept 'powder contains oxygen' or 'magnesium combined with oxygen'
*or 'magnesium oxide was formed' or
'magnesium has been oxidised'*
do not accept 'magnesium combined with air'

- (ii) $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ 1
accept 'Mg + $\frac{1}{2}\text{O}_2 \rightarrow \text{MgO}$ '
*do **not** accept 'Mg + O \rightarrow MgO'*
disregard any state symbols

[4]

Question 2:

- (a) any **one** from 1
 • more air **or** oxygen
*accept 'gas reaching the flame already has air **or** oxygen mixed in it'*
 • better mixing gives more combustion **or** more efficient burning
*accept 'better **or** faster combustion'*
accept the converse ie. arguments applied to a Bunsen with a closed air-hole

- (b) oxygen 1
*do **not** accept 'air'*

- carbon dioxide + water 1
***both** products are required for the mark*
products may be in either order
accept 'carbon monoxide + water'
*disregard any reference to heat **or** energy*
accept correct formulae for words
the equation need not be balanced

[3]

Question 3:

- (a) (i) 0.44 g 1
the unit is required for the mark

- (ii) thermal decomposition \surd 1
if more than one box is ticked, award no mark

- (b) (i) magnesium + oxygen \rightarrow magnesium oxide 1
accept ' $2\text{Mg} + \text{O}_2 \rightarrow 2\text{MgO}$ '

- (ii) magnesium **or** the contents have gained oxygen 1
accept 'gained oxygen'
accept 'the oxygen has mass'
*do **not** accept 'it had gained gas' **or** 'an oxide is formed' **or** 'magnesium reacted with the oxygen'*

- (iii) any **one** from 1

- oxidation
accept 'oxidisation' or 'redox'
- combustion
accept 'burning'

[5]

Question 4:

- (a) (i) any **two** from 2
- CO₂ *do not accept 'carbon dioxide'*
 - H₂O *do not accept 'water'*
 - CO *do not accept 'carbon monoxide'*
 - C *do not accept 'carbon'*
- (ii) any **two** from 2
- water droplets form on the inside of the bell-jar
accept 'condensation'
 - thermal energy is released
accept 'heat or energy is given off'
 - light is released
accept 'there is a flame'
 - soot is produced
 - smoke is produced
accept 'the wick is used up'
do not accept 'carbon dioxide is formed'
or 'carbon monoxide is given off'
- (b) (i) answers may be in either order
- oxygen increases 1
 - carbon dioxide decreases 1
- (ii) photosynthesis stops 1
respiration continues to take place 1
do not accept 'respiration takes place'
- (c) (i) chloroplast 1
(ii) nucleus 1

[10]

Question 5:

- (a) (i) $2\text{NH}_3 + \text{H}_2\text{SO}_4 \rightarrow (\text{NH}_4)_2\text{SO}_4$ 1
- (ii) $2\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$ 3

one mark is for the formula
 Na_2SO_4

one mark is for the formula
 H_2O

one mark is for balancing the
equation

(b) 3

[5]

1