Year 8 Atoms & Elements, Heating & Cooling HW Questions

36 minutes

48 marks

M1. (a) (i) any **one** from

- gold
- iron
- magnesium

1 (L3)

(ii) any **one** from

- sulphur
- phosphorus

1 (L4)

(iii) iron

1 (L3)

(iv) iron sulphide

1 (L5)

(b) magnesium sulphide

*do **not** accept 'magnesium sulphite'*
***or** 'magnesium sulphate'*

1 (L5)

[5]

M2. (a) (i) • C *and* E

***both** answers are required for the mark*
answers may be in either order

1 (L5)

(ii) • A

1 (L5)

(b) • Cu ✓

if more than one box is ticked, award no mark

1 (L6)

(c) •

number of atoms of iron	***numbers of atoms of oxygen***
1	1
2	3

*for all **four** numbers correct, award two marks*
*for **two** or **three** numbers correct, award one mark*
*for **one** number correct, award no marks*

2 (L5)

[5]

M3. (a) hydrogen

1 (L6)

(b) (i) region 3

1 (L6)

(ii) region 1

1 (L6)

(iii) region 2

1 (L6)

(c) any **one** from

- it is a compound
- it is not an element
- it is made up of more than one element

*do **not** accept 'it is **not** a single substance'*

1 (L5)

(d) (i) copper + iron sulphate

answers may be in either order
***both** are required for the mark*

1 (L6)

(ii) the nail becomes brown **or** pink **or** copper coloured

accept 'it is covered in copper'
accept 'it is rust coloured'
*do **not** accept 'it goes rusty'*

1 (L6)

[7]

##

(a) • *X-axis*: mass of magnesium (g)

• *Y-axis:* mass of magnesium oxide (g)

__both__ labels are required for the mark
units are required for the mark
pupils can gain credit for correct responses to other parts if the axes are wrongly labelled __or__ magnesium is on the Y-axis and magnesium oxide is on the X-axis

1 (L7)

• reasonable scales

accept a scale of 1 g or 2 g per 5 small squares
scale need not begin at zero

1 (L7)

• reasonably accurate plotting of all points

all points plotted to ± 1 small square

1 (L7)

• a line of best fit drawn

1 (L7)

(b) (i) E

1 (L7)

(ii) any **one** from

• ignore it in drawing the line of best fit
accept 'ignore it'

• they could predict the figure from the line of best fit
accept 'they could use the graph line'

• they should repeat the reading
accept 'check it'
pupils can gain credit for a response which suggests they should predict the correct value from the pattern
__or__ ignore the anomalous results __or__ repeat the reading

1 (L7)

(c) a number from 11 to 13

accept a value consistent with the line of best fit
the unit is not required for the mark

1 (L6)

(d) any **one** from

- the greater the mass of magnesium burned the greater the mass of oxide formed
- the magnesium and oxygen react in fixed proportions
- the mass of magnesium oxide formed is proportional to the mass of magnesium burned
- the greater the mass of magnesium the greater the mass of oxygen that combines with it

1 (L6)

[8]

M5. (a) (i) B

if more than one letter is given award no mark

1

(ii) C

if more than one letter is given award no mark

1

(b) are faster **or** quicker

1

(c) (i) goes down **or** decreases

accept 'goes back to where it started'
or *'goes back to diagram 1'*
or *'goes to same level'*

1

(ii) more gas molecules were going out of the porous pot than going in **or** fewer molecules were going in than coming out

accept 'hydrogen can escape quicker than air can get in'
*do **not** accept 'pressures equalised'*

1

(d)

substance	**it is an element**	**it is a compound**	**it is a mixture**	**number of atoms in one molecule**
carbon dioxide		√		3
oxygen	√			2

if more than one box is ticked in either row
award no mark for that part, although the
mark for the number of atoms may still be awarded

4

[9]

M6. (a) (i) any **one** from

- they vibrate further
  *accept 'they vibrate more **or** faster'*
- they move faster
  accept 'they go faster'
  do not accept 'they move about more'
  ***or** 'they collide more'*

1 (L6)

(ii) it increases
*accept 'it gets bigger' **or** 'they move further apart'*

1 (L6)

(b) (i) 220

1 (L5)

(ii) 299.9

1 (L5)

[4]

M7. (a) conduction

1 (L7)

(b) (i) it rises
*accept 'it forms a convection current' **or** 'it floats to the top'*

1 (L7)

any **one** from

- it expands
  accept 'the molecules move further apart'
- it becomes less dense
  accept 'the particles move more quickly'

1 (L7)

(ii) any **one** from

- the atoms or particles in a solid cannot move
  *accept 'the atoms cannot move around **or** are fixed'*
- the atoms or particles are bonded tightly
  accept 'particles are bonded'
- iron is not fluid
  accept 'iron has a fixed shape'
  *do **not** accept 'iron is a solid'*

1 (L7)

(c) (i) evaporation

accept 'evaporating'

1 (L6)

(ii) any **one** from

- it gets colder
- it decreases

accept 'it loses heat'

1 (L7)

[6]

M8. markers should read the answers to parts a and b before marking this question

parts a and b should be marked together

(a) • temperature of the water

accept 'temperature'
accept 'room temperature'
*do **not** accept responses that describe rates of heating.*

1 (L7)

any **one** from

- rate of evaporation

accept 'the time for it to evaporate'
answers must refer to both time taken and amount of water lost

- time taken for all the water to evaporate

accept 'measure how much water is left after a certain time'
'time taken' is insufficient

- volume **or** mass **or** amount of water lost in a fixed time

1 (L7)

any **one** from

- starting volume of water

accept 'the amount of water'
accept a specified volume of water
'same heater' and 'same starting measurement' are insufficient

- shape of container
- same ambient conditions

accept 'room temperature' if the independent variable is 'water temperature'

1 (L7)

(b) a column **or** row indicating temperature **and** a column **or** row indicating time **or** volume lost **or** volume remaining

*accept a column **or** row indicating 'rate of evaporation'*
*accept 'amount lost' **or** 'amount remaining'*

***both** headings are required for the mark*
the units of measurement are not necessary for the mark
*the second column **or** row should be consistent with the dependent variable identified in part **a***
ignore other columns in the table

1 (L7)

[4]