

Q1.

- (a) (i) any **one** from
- bubbles
 - fizzing
accept 'effervescence'
 - gas is given off
*'metal goes into solution or turns into a salt'
'and there would be a rise in temperature'
are insufficient answers as they are
not shown in the drawings*
- 1 (L3)
- (ii) • magnesium
accept 'Mg'
- zinc
accept 'Zn'
 - iron
accept 'Fe'
 - copper
accept 'Cu'
*answers must be in the correct order
all four answers are required for the mark*
- 1 (L4)
- (b) (i) • copper
accept 'Cu'
- 1 (L3)
- (ii) • iron
accept 'Fe'
- 1 (L4)

[4]

Q2.

- Acids damage teeth ✓
- 1 (L4)
- Acids react with metals such as magnesium ✓
- 1 (L4)
- Acids may harm your skin. ✓
- 1 (L4)
- Acids react with limestone. ✓
- 1 (L4)

*i.e. ticks in the third, fourth, sixth and seventh boxes
if more than four boxes are ticked, deduct one mark
for each incorrectly ticked box
minimum mark zero*

[4]

Q3.

- (a) any **one** from
- there is a colour change
*accept 'it goes green **or** orange'
'the colour' is insufficient*
 - a new metal is formed
accept 'the iron filings change colour'
- 1 (L5)
- (b) (i) copper
accept 'Cu'
- 1 (L5)
- (ii) iron sulphate
accept 'FeSO₄'
- 1 (L6)
- (iii) • no ✓
- any **one** from
- iron is more reactive than copper
accept 'iron is higher on the reactivity series'
 - copper is less reactive than iron
*accept 'copper does not displace iron'
both an indication that the reaction does not happen
and the explanation are required for the mark*
- 1 (L6)
- (c) • calcium ✓
potassium ✓
- if more than two boxes are ticked, award no mark
both answers are required for the mark*
- 1 (L6)

[5]**Q4.**

- (a) any **two** from
- good electrical conductor
 - good thermal conductor
accept 'good conductor'
 - melting point above room temperature
- 2 (L5)
- (b) (i) magnesium sulphide
*do **not** accept 'magnesium sulphate'*
- 1 (L5)
- (ii) any **two** from

- good electrical conductor
accept 'good conductor'
- good thermal conductor
- magnetic

2 (L5)

[5]

Q5.

- (a) (i) blue 1
- (ii) black 1
- (b) copper oxide + sulphuric acid → copper sulphate + water
the whole word equation is required for the mark
reactants may be in either order
ignore references to oxidation states 1
- (c) to separate **or** remove the copper oxide
accept 'to purify the solution'
*accept 'to separate **or** remove the black solid'*
accept 'to separate the solid from the liquid'
*do **not** accept 'because no more solid would dissolve'* 1

[4]

Q6.

- (a) in tube B: no oxygen 1 (L5)
in tube C: no water **or** water vapour
accept 'no air'
accept 'no moisture'
accept 'it was dry' or 'it was not wet' 1 (L5)
- (b) (i) acidic 1 (L5)
- (ii) hydrogen 1 (L6)
- (c) (i) it increased **or** it was more
accept 'it was heavier' 1 (L6)
- (ii) any **one** from
- oxygen **or** water was added
 - the oxygen has mass
 - rust contains iron and oxygen **or** water
accept 'rust is iron oxide'
 - the iron reacted with oxygen **or** water
- 1 (L6)

(d) **Answers must refer to either test-tube D or to sea water.**

any **one** from

- the nail was more rusty in D than in A
accept 'D was the only one which was rusty'
accept 'D was very rusty'
- it was more rusty in sea water
- sea water contains salt

1 (L6)

[7]

Q7.

(a) (i) copper sulphate
do not accept 'CuSO₄'

1 (L7)

(ii) zinc sulphate
accept 'ZnSO₄'

1 (L7)

copper
accept 'Cu'
answers may be in either order

1 (L7)

(iii) any **one** from

- magnesium
- iron
- aluminium
- tin

do not accept 'sodium' or 'potassium'
or 'lithium' or 'calcium' or 'lead' or 'copper'

1 (L7)

(b) none **or** stays the same **or** zero
accept '0'

1 (L7)

(c) none **or** stays the same

1 (L7)

[6]

Q8.

(a) (i) *magnesium* + hydrochloric acid →

1 (L7)

→ magnesium chloride + hydrogen
do not accept 'hydrogen chloride'
do not accept formulae

1 (L7)

(ii) magnesium is more reactive than hydrogen **and** copper is less reactive

than hydrogen

accept 'magnesium is more reactive than copper'

accept 'copper is less reactive than magnesium'

accept 'magnesium is higher than copper in the reactivity series'

accept 'copper is lower in the reactivity series'

1 (L7)

(b) sulphuric

1 (L7)

(c)

formula	name
$CuSO_4$	copper sulphate
$MgCl_2$	magnesium chloride

2 (L7)

[6]