

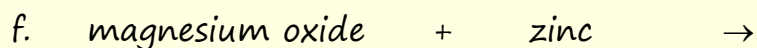
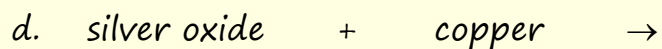
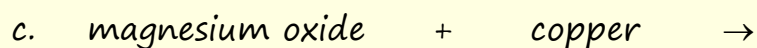
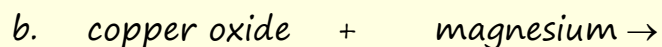


Answer all the questions below then check your answers

1. Put the following metals in order of reactivity, most reactive first.

Silver potassium magnesium iron gold zinc aluminium lead sodium

2. A displacement reaction is one in which a more reactive metal will kick out or displace a less reactive metal from its compounds or from solutions of its compounds. Copy and complete the word equations below.



3. When a zinc nail is dropped into a blue copper sulfate solution with a few minutes the nail is covered in a brown furry solid and the solution has gone clear.

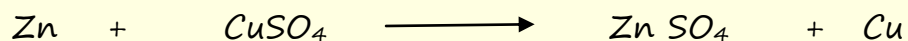
i. What accounted for the original blue colour?

ii. Write a word equation for the reaction.

iii. What was the brown furry solid on the zinc nail?

iv. Why did the solution turn colourless?

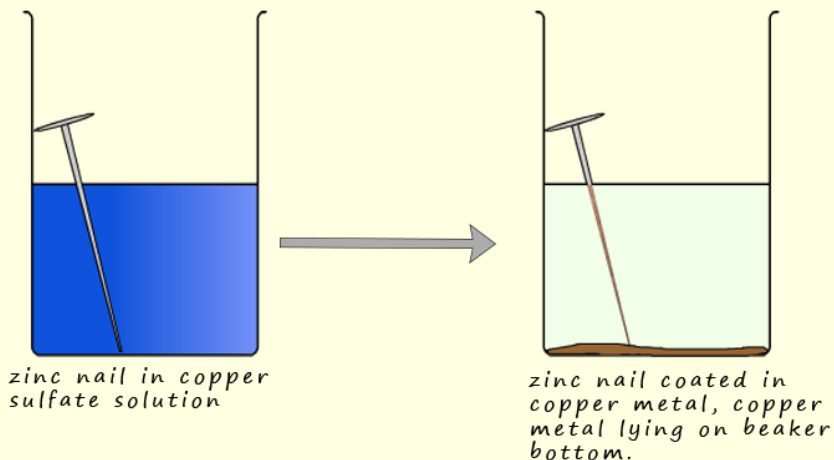
v. A balanced symbolic equation for the reaction is shown below:



i. What substance has been oxidised and what has been reduced in this reaction?

ii. What do we call reaction where one substance is oxidised and one reduced?

iii. Write an ion-electron equation to show the reduction and oxidation reactions taking place.



4. Below is a list of starting materials for reactions, in each case say which is the more reactive metal. The first has been done for you.

a) Magnesium, Copper oxide

Answer: Magnesium is more reactive than copper

b) Calcium, Zinc oxide

c) Silver, iron oxide

d) Zinc, Copper oxide

e) Aluminium, Lead oxide

f) sodium, Aluminium oxide

g) Copper, Silver oxide

5 In the questions below say whether you think that there will be a reaction or not, if you think that there will be, write a word and balanced symbolic equation. The word equation only for the first one has been done for you.

a) Magnesium and Copper oxide

Answer: Magnesium + Copper oxide \rightarrow Magnesium Oxide + Copper

b) Sodium and Zinc oxide (ZnO)

c) iron and Magnesium oxide

d) Zinc and Copper oxide

e) Aluminium and iron (III) oxide

f) magnesium and Aluminium oxide

Answers

1. Put the following metals in order of reactivity, most reactive first.

Silver potassium magnesium iron gold zinc aluminium lead sodium

Potassium sodium magnesium aluminium zinc iron lead silver gold

2. A displacement reaction is one in which a more reactive metal will kick out or displace a less reactive metal from its compounds or from solutions of its compounds. Complete the word equations below.

a iron oxide + magnesium → magnesium oxide + iron

b copper oxide + magnesium → magnesium oxide + copper

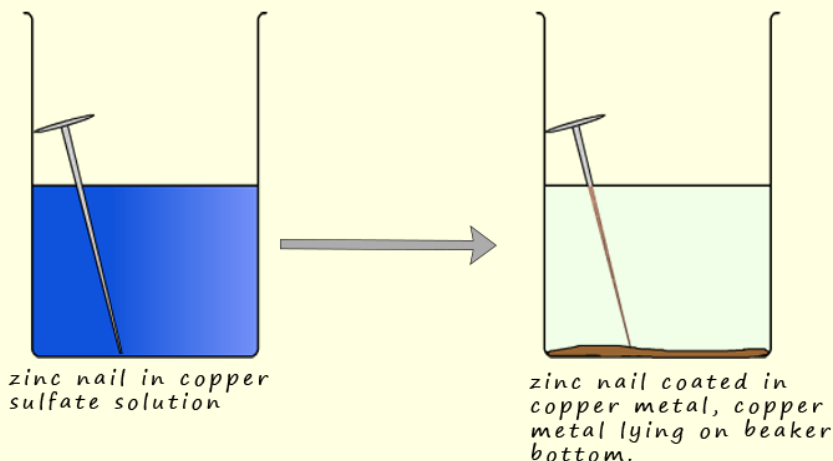
c magnesium oxide + copper → no reaction

d silver oxide + copper → copper oxide + silver

e zinc oxide + magnesium → magnesium oxide + zinc

f magnesium oxide + zinc → no reaction

3. When a zinc nail is dropped into a blue copper sulphate solution with a few minutes the nail is covered in a brown furry solid and the solution has gone clear.



i. What accounted for the original blue colour?

$\text{Cu}^{2+}_{(\text{aq})}$ ions, the copper ions in solution are blue

ii. Write a word equation for the reaction.

Copper sulfate + zinc \rightarrow zinc sulfate + copper

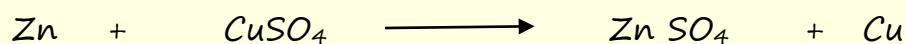
iii. What was the brown furry solid on the zinc nail?

Copper metal which is displaced from the copper solution covers the nail and eventually falls off and collects on the bottom of the beaker.

iv. Why did the solution turn colourless?

Zinc sulfate is a colourless solution.

v. A balanced symbolic equation for the reaction is shown below:



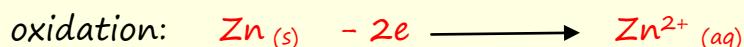
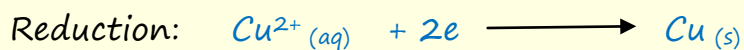
i. What substance has been oxidised and what has been reduced in this reaction?

Zinc metal is oxidised, the $\text{Cu}^{2+}_{(\text{aq})}$ are reduced to $\text{Cu}_{(\text{s})}$

ii. What do we call reaction where one substance is oxidised and one reduced?

A redox reaction.

iii. Write an ion-electron equation to show the reduction and oxidation reactions taking place.



4. Below is a list of starting materials for reactions, in each case say which is the more reactive metal. The first has been done for you.

a) Magnesium, Copper oxide

Answer: *Magnesium is more reactive than copper*

b) Calcium, Zinc oxide *calcium is more reactive.*

c) Silver, iron oxide *iron is more reactive*

d) Zinc, Copper oxide *zinc is more reactive*

e) Aluminium, Lead oxide *aluminium is more reactive*

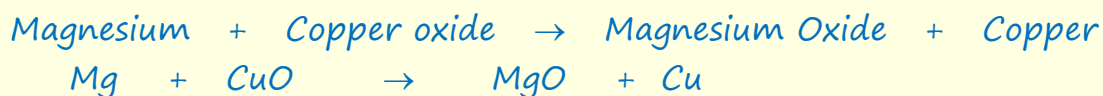
f) sodium, Aluminium oxide *sodium is more reactive*

g) Copper, Silver oxide *copper is more reactive.*

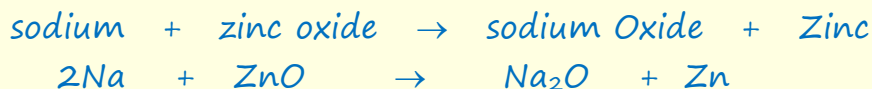
5 In the questions below say whether you think that there will be a reaction or not, if you think that there will be, write a word and balanced symbolic equation. The word equation only for the first one has been done for you.

a) Magnesium and Copper oxide

Answer:



b) Sodium and Zinc oxide



c) iron and Magnesium oxide

iron + magnesium oxide → no reaction.

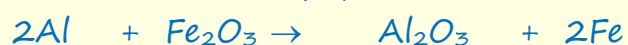
d) Zinc and Copper oxide

zinc + copper oxide → zinc Oxide + copper



e) Aluminium and iron(III) oxide

aluminium + iron(III) oxide → aluminium Oxide + iron



f) magnesium and Aluminium oxide

Magnesium + iron(III) oxide → magnesium Oxide + iron

