

# **Atoms and elements/compounds and mixtures**

8E & 8F

26 min

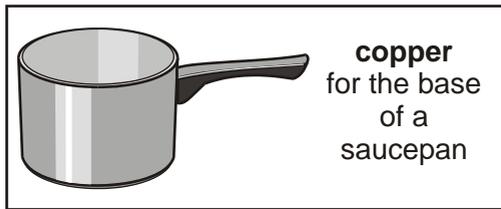
26 marks

*Q1-L3, Q2-L4, Q3-L4, Q4-L5, Q5-L6, Q6-L7*

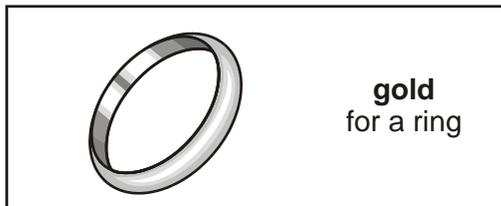
1. (a) The drawings below show that different elements are used for different objects. Draw a line from each element to the reason for using that element. Draw only **four** lines.

**element used**

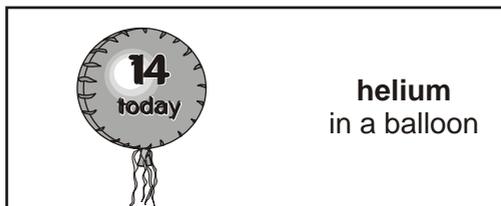
**reason for using the element**



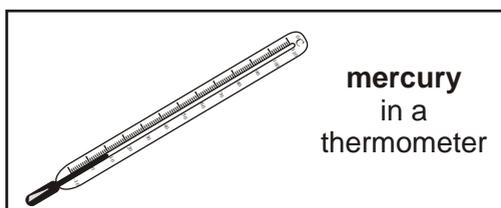
It is lighter than air.



It is a good conductor of heat.



It is a good conductor of electricity.



It stays shiny because it does **not** react with oxygen.

It is a liquid at room temperature.

4 marks

- (b) Which of the four elements is **not** a metal?  
Tick the correct box.

copper

gold

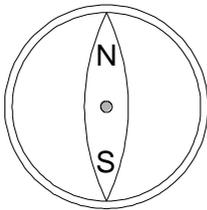
helium

mercury

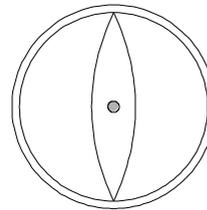
1 mark  
maximum 5 marks

2. (a) Sam has two small compasses. When he puts them a long way apart, they both point North.

Label the North and South magnetic poles on compass B.



compass A

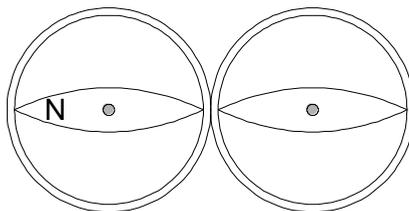


compass B

1 mark

- (b) Sam puts the compasses side by side.

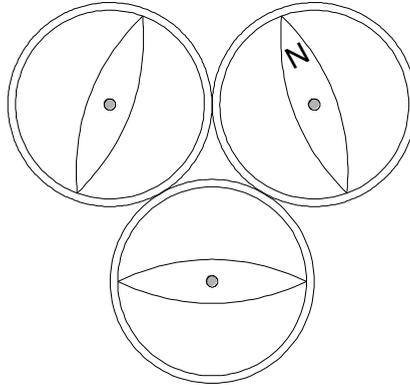
Label the North and South magnetic poles on **both** compasses.  
One pole has been done for you.



1 mark

(c) Sam then puts three compasses close together.

Label the North and South magnetic poles on each of the **three** compasses. One pole has been done for you.



1 mark

(d) What metal are compass needles made from?

.....

1 mark

Maximum 4 marks

3. The list below shows properties that different elements can have.

- magnetic
- can be compressed
- very high melting point
- very low melting point
- good conductor of heat
- poor conductor of heat
- good conductor of electricity
- poor conductor of electricity

(a) Which **two** properties from the list above make aluminium suitable for saucepans?

1. ....

2. ....

2 marks

(b) Which property in the list above explains why:

(i) copper is used in the cable of a television?

.....

1 mark

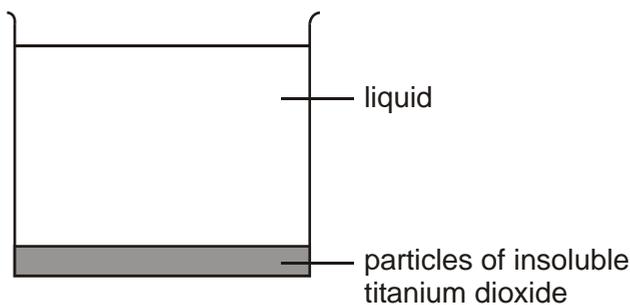
(ii) a lot of oxygen gas can be pumped into a very small container?

.....

1 mark

Maximum 4 marks

4. (a) Samantha opened a tin of white paint. The paint consisted of a liquid and particles of titanium dioxide that are insoluble in the liquid. The paint had separated into two layers, as shown below.



(i) What type of substance is the paint?  
Tick the correct box.

a compound       an element       a mixture

1 mark

(ii) What type of substance is titanium dioxide?  
Tick the correct box.

a compound       an element       a mixture

1 mark

(iii) Why did the particles of insoluble titanium dioxide sink to the bottom?

.....

.....

1 mark

- (b) Samantha stirred the paint and used it to paint a window frame. She got some of the paint on the glass.



Samantha could **not** get the paint off the glass with water. When she used a different liquid called white spirit the paint came off.

Why could she remove the paint with white spirit but **not** with water?

.....  
 .....

1 mark  
 maximum 4 marks

5. Copper can be obtained from its ore, copper sulphide, in two stages.

**First stage**     *heating the ore in air*

Copper sulphide reacts with oxygen from the air to form copper oxide and sulphur dioxide gas.

**Second stage**     *heating the copper oxide with carbon*

Copper oxide reacts with carbon to form copper and carbon dioxide gas.

- (a) Give the names of **three** elements mentioned above.

1. ....  
 2. ....  
 3. .....

1 mark

- (b) Give the name of **one** compound mentioned above.

.....

1 mark

(c) Give the name of the compound, mentioned above which causes 'acid rain'.

.....

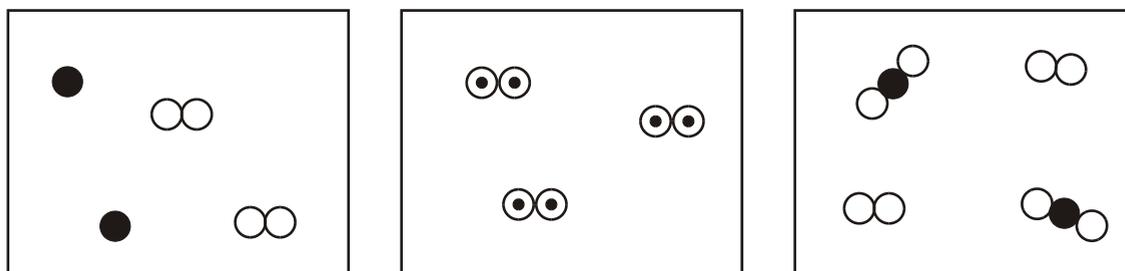
1 mark

Maximum 3 marks

6. In the 19th Century, a scientist called John Dalton used symbols to represent atoms. The symbols he used for atoms of three different elements are shown below.



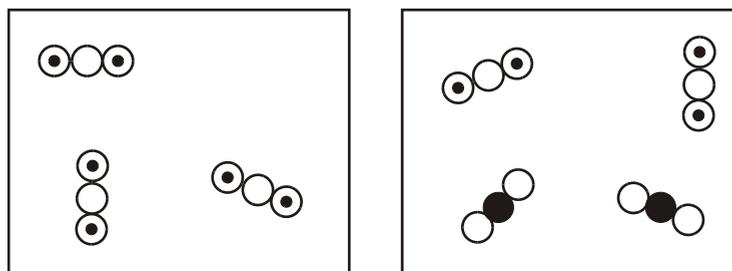
The diagrams below show different combinations of these atoms.



A

B

C



D

E

(a) (i) Give the letter of the diagram which shows a mixture of **two** elements.

.....

1 mark

(ii) Give the letter of the diagram which shows a mixture of **two** compounds.

.....

1 mark

(iii) Give the letter of the diagram which shows a mixture of an element and a compound.

.....

1 mark

(b) Give **one** difference between a compound and a mixture.

.....  
.....  
.....

1 mark

(c) (i) Suggest a name and formula for the substance represented in diagram B.

name .....

formula .....

1 mark

(ii) Suggest a name and formula for the substance represented in diagram D.

name .....

formula .....

1 mark

maximum 6 marks