

Centre Number	Candidate Number	Name
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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS  
Cambridge Checkpoint

**SCIENCE**

**1113/01**

Paper 1

November 2005

**45 minutes**

Candidates answer on the Question Paper.  
No Additional Materials are required.

**READ THESE INSTRUCTIONS FIRST**

Write your Centre number, candidate number and name on all the work you hand in.  
Write in dark blue or black pen in the spaces provided on the Question Paper.  
Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

You may use a soft pencil for any diagrams, graphs or rough working.

You should show all your working in the booklet.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **13** printed pages and **3** blank pages.



1 Each word listed below is the name of a tissue, organ or organ system.

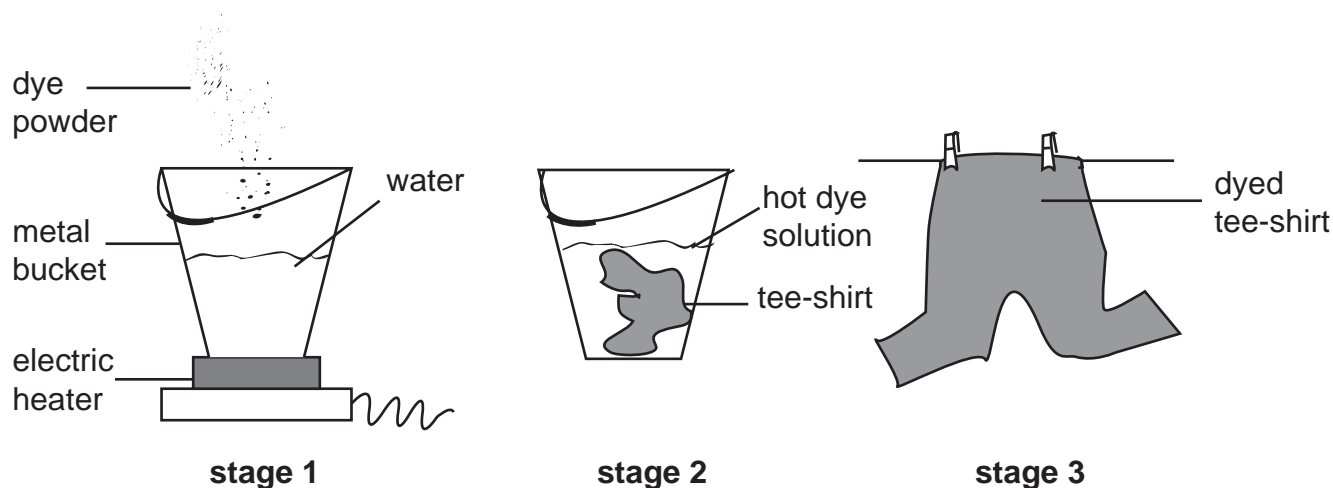
**connective**                      **digestive**                      **lungs**  
**reproductive**                      **heart**                      **liver**                      **muscle**

Write each word in the appropriate column of the table. The first three have been done for you.

tissues	organs	organ systems
connective	lungs	digestive

[4]

2 A student uses a dye to change the colour of his tee-shirt.



(a) Why is a metal bucket more suitable than a plastic bucket?

..... [1]

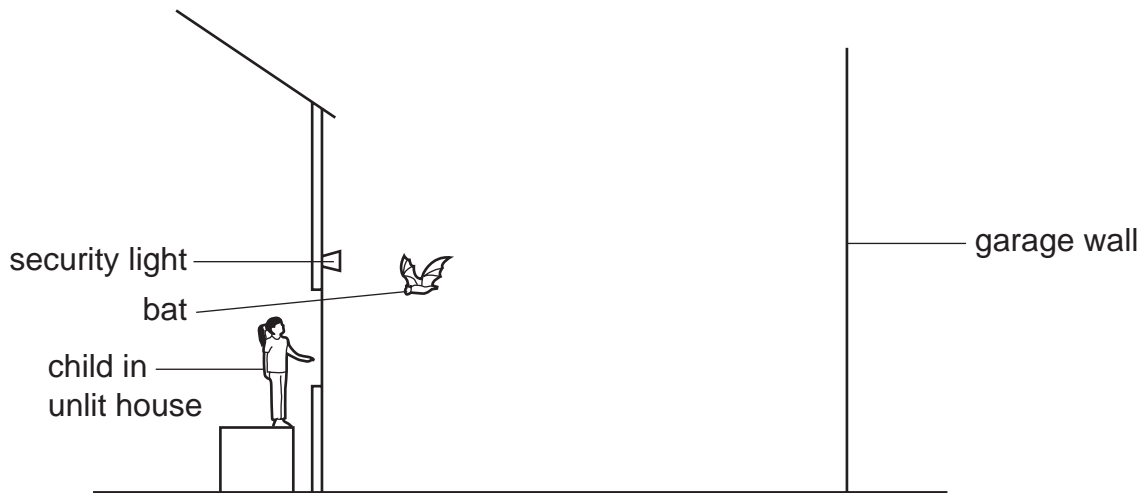
(b) When the bucket is heated, what happens to the movement of the particles in the metal?

..... [1]

(c) The dyed tee-shirt is hung up to dry in a warm room. What physical change happens to the water from the dye solution?

..... [1]

3 The diagram shows a bat in a garden at night.



(a) When it is completely dark the child cannot see the bat but if the moon is shining she can see it.

Explain why the child can see the bat in moonlight.

.....  
 ..... [2]

(b) When the security light is switched on a shadow of the bat is formed on the garage wall.

(i) Draw lines on the diagram to show how a shadow of the bat is formed on the wall.

Label the shadowed area. [2]

(ii) If the bat moves nearer to the garage wall, what will happen to the size of its shadow?

..... [1]

(c) What piece of apparatus would you use to measure the distance between the light and the garage wall?

..... [1]

4 Antelope feed on the grasses of the African plains. Cheetahs kill and eat antelope.

(a) Use this information to write a food chain.

[1]

(b) Which organism in the food chain is a producer?

..... [1]

(c) Cheetahs are carnivores.  
What does this mean?

..... [1]

(d) Give an example of a predator and its prey from this food chain.

predator .....

prey ..... [1]

(e) What effect would a severe drought have on the population of antelope?

..... [1]

5 Eight substances are listed below. Choose your answers from this list.

magnesium sulphate	oxygen	iron	calcium carbonate
sulphur	calcium	magnesium	water

(a) Which **three** of the substances are metals?

..... [2]

(b) (i) Magnesium sulphate is a compound.

Give the name of **two** other compounds.

..... [2]

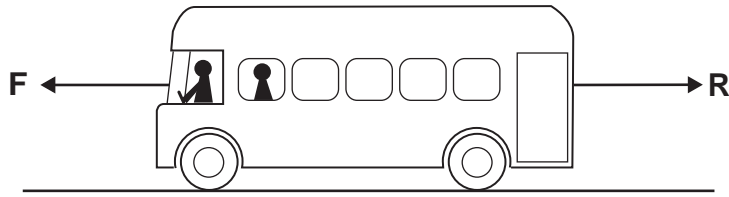
(ii) A formula of magnesium sulphate is  $\text{MgSO}_4$ .  
Name the **three** elements that combine to form this compound.

..... [2]

(c) Which substance is a gas at room temperature?

..... [1]

- 6 A bus travels along a level road at a constant speed.  
The engine produces a force **F** acting against the resistive forces **R**.



- (a) What is the size of the force **F** compared to **R**?  
Tick the correct box.

**F** is larger than **R**.

**F** is the same as **R**.

**F** is smaller than **R**.

[1]

- (b) The bus travels a distance of 40 m in 4 s. Calculate its speed. Your answer should include the correct unit.

..... [2]

- (c) A bus engine changes one form of energy into another.

What form of energy is supplied

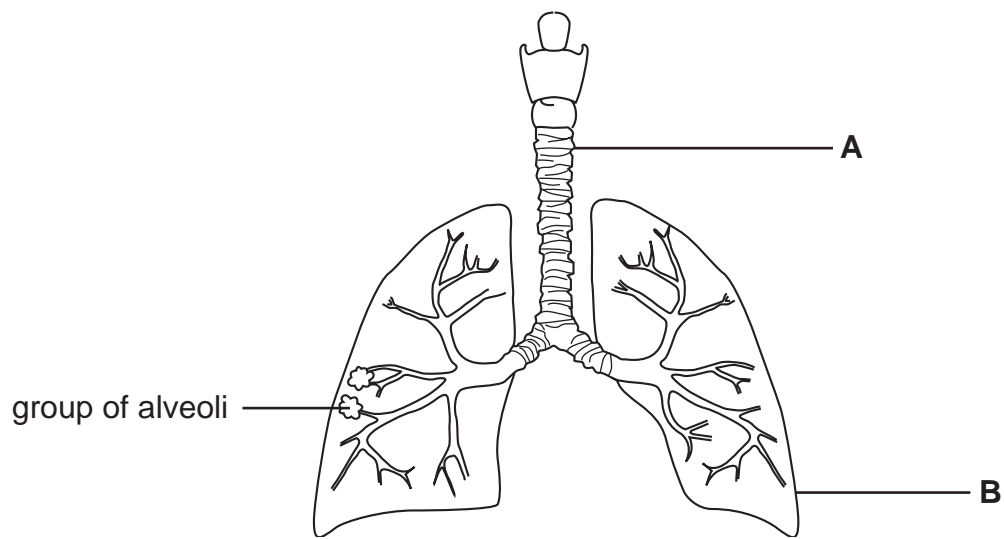
- (i) by the fuel used in the engine,

.....

- (ii) by the battery?

..... [2]

7 The diagram shows the human respiratory system.



(a) Name parts **A** and **B**.

**A** .....

**B** ..... [2]

(b) Gas exchange takes place in the alveoli.

Complete the following sentence to describe this exchange of gases.

..... passes through the walls of the alveoli from the  
 air into the ..... whilst ..... passes  
 in the opposite direction. [3]

8 (a) The mass of a liquid is 40g. Name a piece of apparatus that could be used to measure this mass.

..... [1]

(b) The volume of the liquid is 50cm<sup>3</sup>. Name a piece of apparatus that could be used to measure this volume.

..... [1]

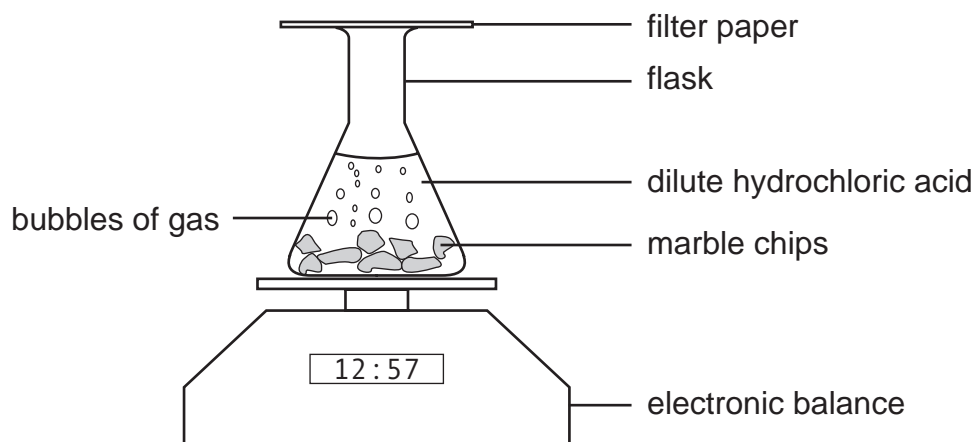
(c) Calculate the density of the liquid.

Show your working and give units in your answer.

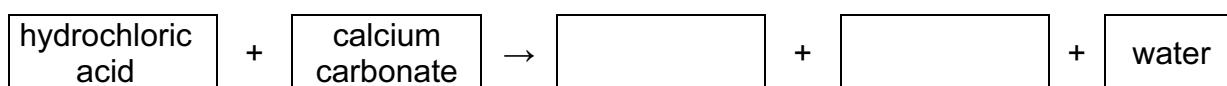
..... [2]

9 Hydrochloric acid reacts with marble (calcium carbonate).

The diagram shows an experiment to measure the rate of this reaction.



(a) Complete the word equation for this reaction.



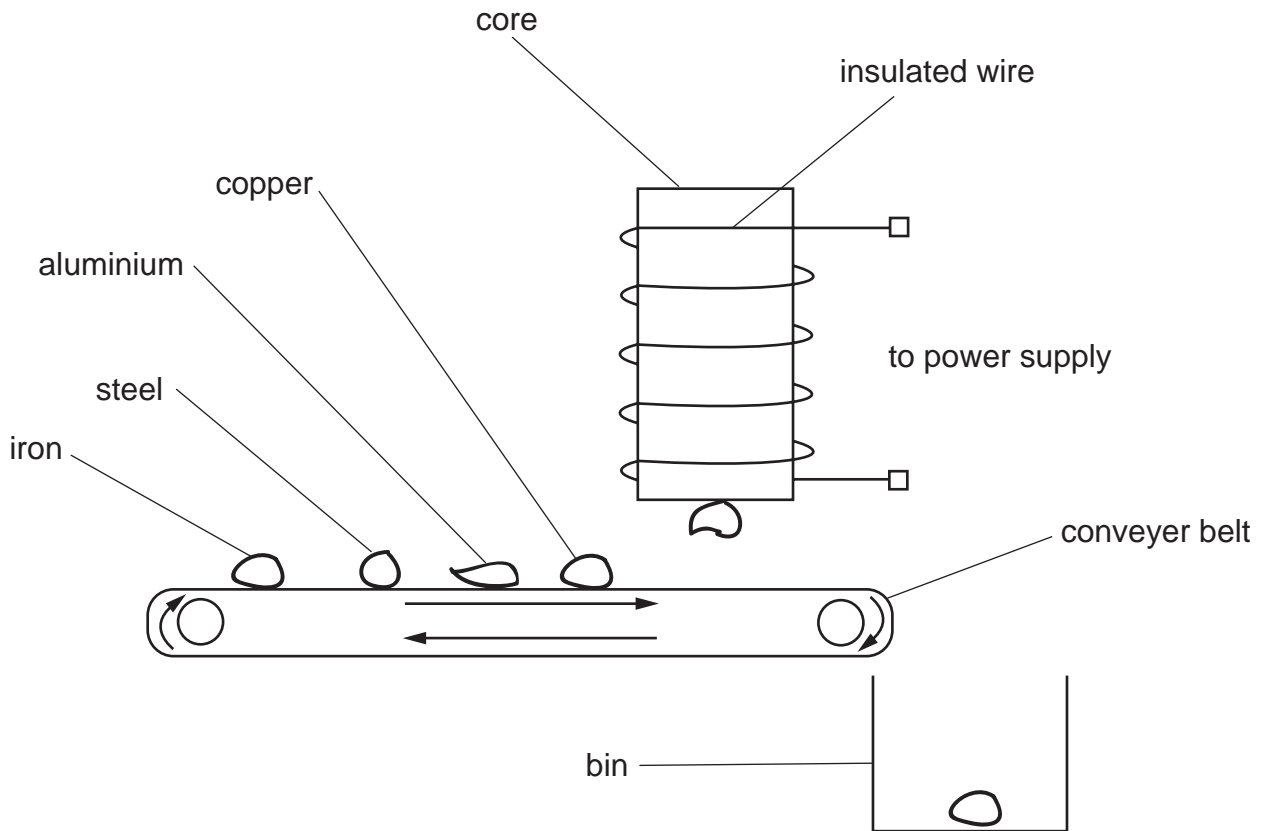
[2]

(b) Why do the beaker and its contents lose mass?

..... [1]

10 An insulated wire wrapped around a core and carrying an electric current makes an electromagnet.

It could be used to sort scrap metal on a conveyer belt.



(a) Name a suitable material for the core of the electromagnet.

..... [1]

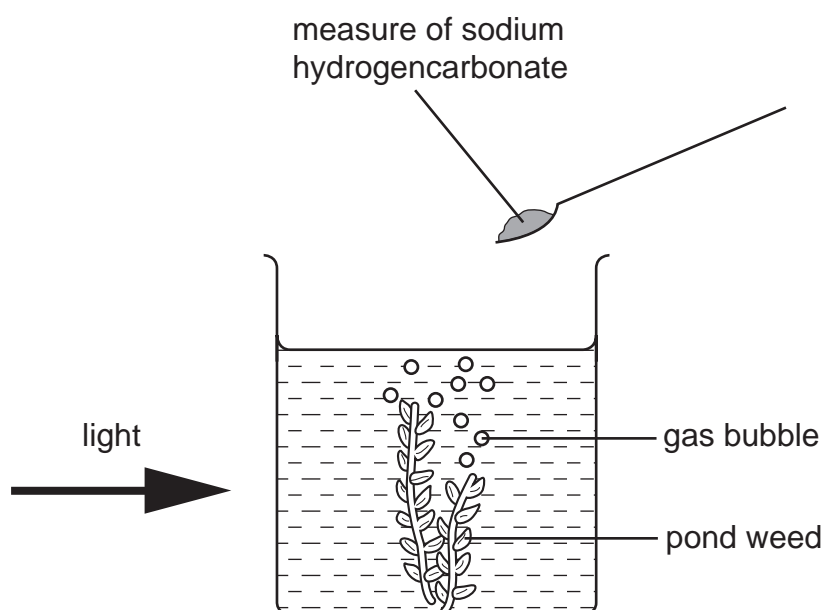
(b) Which of the metals shown would fall into the bin?

..... [1]

(c) When the electric current is switched off the metal sticking to the electromagnet drops off.  
Explain why this happens.

..... [1]

11 The diagram shows a pupil's investigation of photosynthesis.



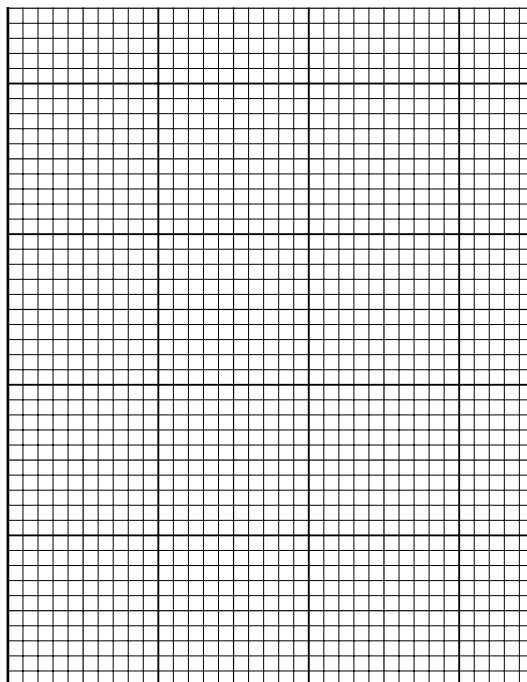
Sodium hydrogencarbonate can be added to the water to increase the concentration of dissolved carbon dioxide.

A group of pupils added measures of sodium hydrogencarbonate to the water and counted the number of gas bubbles given off by the pond weed.

Their results are shown in the table.

number of measures of sodium hydrogencarbonate	number of bubbles given off per minute
0	5
1	10
3	20
5	30
7	40

(a) Plot a line graph using these results. Label the axes.



[3]

(b) How many bubbles would you expect to be given off per minute if the experiment was repeated using 4 measures of sodium hydrogen carbonate?

..... [1]

(c) What do these results suggest about the composition of the water at the start of the experiment?

..... [1]





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