Cambridge Secondary 1 Checkpoint

Cambridge International Examinations
Cambridge Secondary 1 Checkpoint

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

5624506658

SCIENCE **1113/02**

Paper 2 **October 2018**

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Pen Pencil Ruler Calculator

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.
You may use an HB pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, glue or correction fluid.

DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.
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.
The total number of marks for this paper is 50.

This document consists of **17** printed pages and **3** blank pages.

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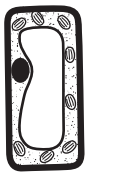
1 Draw a straight line from each **function** to the correct **plant cell.**

Draw only **two** lines.

function	**plant cell**
absorbs water and minerals from soil	
transports water and minerals	
	

[2]

2 Reactions between metals and non-metals form compounds.

(a) Sulfur reacts with metals to form a type of compound called a sulfide.

Complete the table to show the type of compound formed by different non-metals.

One has been done for you.

non-metal	type of compound
chlorine	
oxygen	
sulfur	sulfide

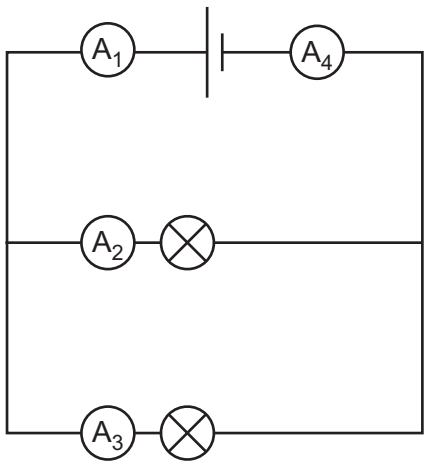
[2]

(b) Iron reacts with a compound and oxygen to form rust.

What is the name of this compound?

..... [1]

3 Gabriella connects an electrical circuit.



There are two lamps and four ammeters in the circuit.

The lamps are identical.

The reading on **A_1** is 0.8 A.

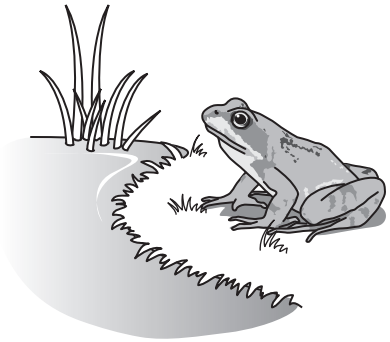
What are the readings on the other ammeters?

A_2 is ..... A.

A_3 is ..... A.

A_4 is ..... A. [2]

4 The diagram shows a frog.



Scientists classify animals with backbones into five main vertebrate groups.

Classify the frog into its correct vertebrate group.

Give **one** reason for your answer.

vertebrate group .....

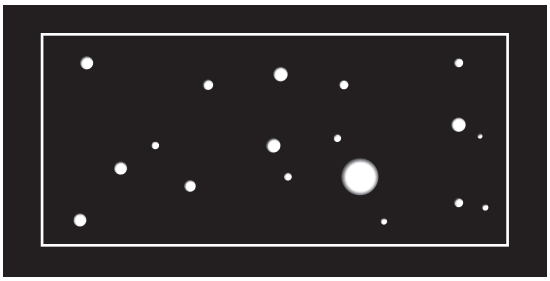
reason .....

.....

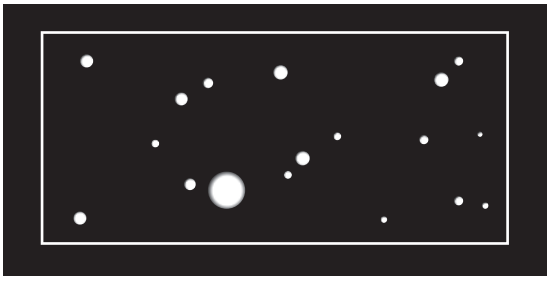
[2]

5 Rajiv draws pictures of the stars in the night sky from his bedroom window.

He draws a picture in January.



He draws a picture in June.



(a) Write down one **difference** between the two pictures.

.....

[1]

(b) Rajiv draws another picture in January of the next year.

Describe what the picture will look like.

.....

.....

[1]

6 **(a)** **(i)** Name the process that plants use to make their own food.

.....

[1]

(ii) Name one **other** product of this process.

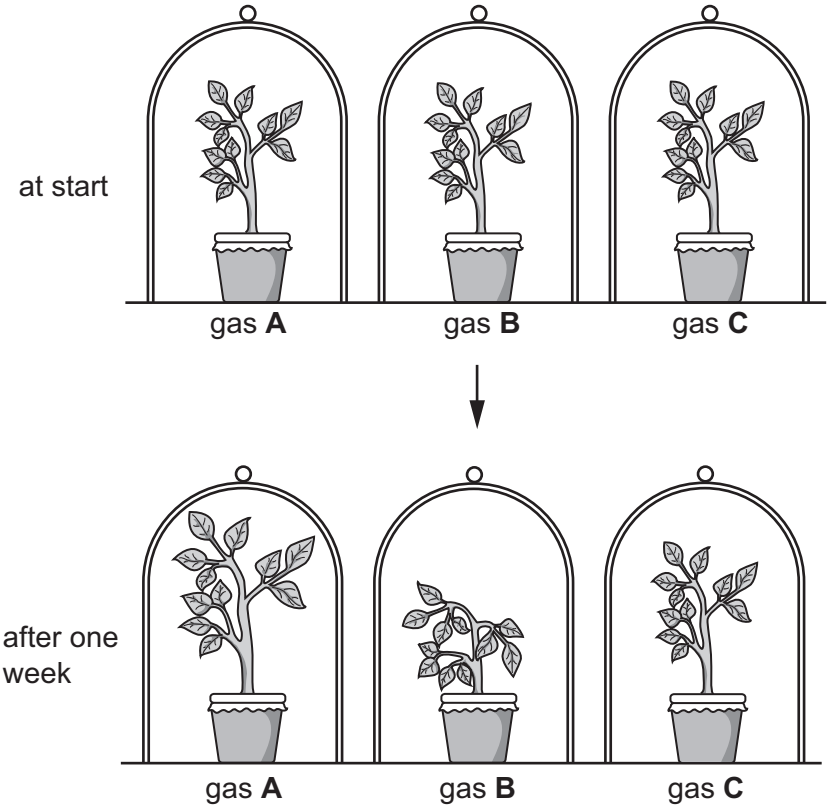
.....

[1]

(b) In an investigation, identical plants are placed in three different gases.

- Each plant is given constant light.
- The plants are kept in the same conditions for one week.

The diagram shows the results of this investigation.



Describe the results of this investigation.

plant kept in gas **A** .....

.....

plant kept in gas **B** .....

.....

plant kept in gas **C** .....

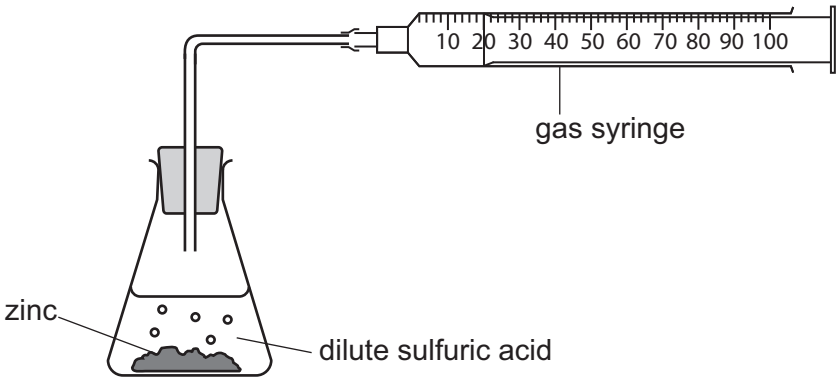
.....

[3]

7 Carlos investigates the reaction of zinc with dilute sulfuric acid.

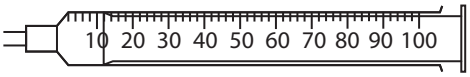
He puts zinc into a conical flask and then adds 25 cm^3 of cold dilute sulfuric acid.

The diagram shows his apparatus.

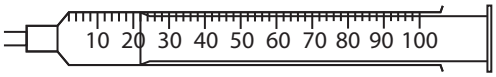


Carlos then records the volume of gas in the syringe each minute.

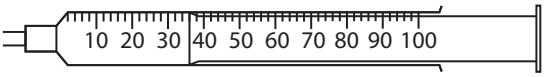
The diagrams below show some of his results.



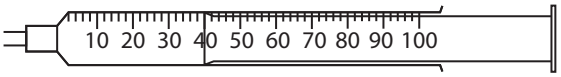
1 minute



2 minutes



4 minutes



6 minutes

(a) Write down the volume of gas collected after 6 minutes.

..... cm^3 [1]

(b) Carlos repeats the investigation using 25 cm^3 of **warm** dilute sulfuric acid.

Predict the volume of gas collected after 2 minutes.

..... cm^3 [1]

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(c) Carlos then repeats the investigation using 25 cm^3 of **more** concentrated sulfuric acid.

Explain why the reaction is faster.

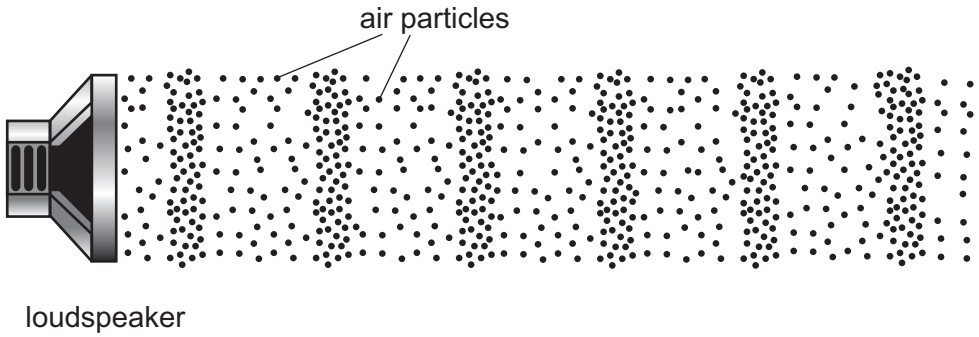
Use ideas about particles and collisions in your answer.

.....

.....

..... [2]

8 Yuri draws a picture to show the air particles in front of a loudspeaker.



Write the letter **C** on the diagram where there is a **compression** of air particles.

Write the letter **R** on the diagram where there is a **rarefaction** of air particles.

[2]

9 The picture shows a mountaineer climbing Mount Everest.

Mount Everest is nearly 9 km high.

The air pressure at the top of the mountain is very low. This makes breathing very difficult.

The mountaineer wears a tight fitting mask connected to a breathing apparatus.

A chemical in the breathing apparatus removes waste gas from his breath.

(a) Name the life process which provides the mountaineer with the energy for climbing.

.....[1]

(b) Which gas, found in the air, is needed for this process?

.....[1]

(c) Which waste gas needs to be removed from the mountaineer's breath?

.....[1]

(d) Suggest why low air pressure at the top of mountains makes breathing more difficult.

.....

.....

.....[2]

10 Youssef and Blessy investigate the reaction of metals with dilute hydrochloric acid.

They put 10 cm^3 of hydrochloric acid into four test-tubes.

They then add 0.1g of a different metal to each test-tube.

Youssef and Blessy measure the time it takes for the metal to react completely.

This is the reaction time.

The table shows their results.

metal	reaction time in s
calcium	15
iron	290
magnesium	23
zinc	230

(a) Put the metals in the table in order of reactivity.

most reactive .....

.....

.....

least reactive ..... [1]

(b) Write the word equation for the reaction between magnesium and hydrochloric acid.

..... + ... → ..... + ...

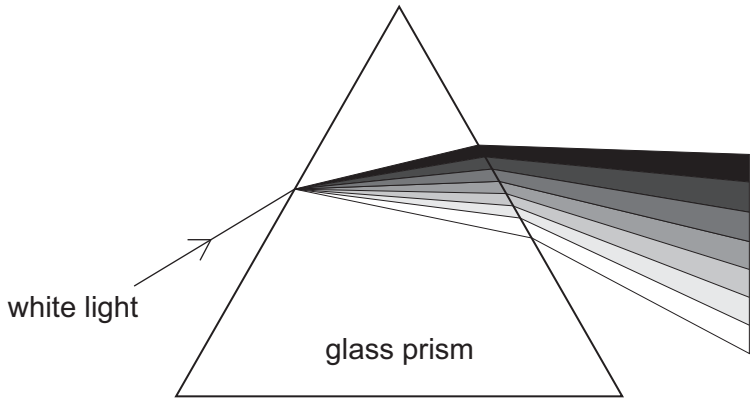
[3]

(c) Youssef and Blessy wear safety glasses during the investigation.

Explain why.

..... [1]

11 White light can be split into different colours by a glass prism.



(a) Write down the name given to this splitting of white light.

.....

[1]

(b) The white light is split into seven different colours.

Complete the order of the seven colours.

red

.....

yellow

.....

blue

.....

violet

[2]

12 Substances are either elements, compounds or mixtures.

(a) Look at the list of substances.

carbon

copper

magnesium carbonate

sulfur

water

Sort the substances into compounds and elements.

One has been done for you.

compound	element
.....	carbon .....
.....	.....
.....	.....
.....	.....

[2]

(b) Read these sentences about mixtures.

Tick (✓) the box next to the correct sentence.

Mixtures are pure substances. ☐

Mixtures can be separated by physical means. ☐

Mixtures contain only elements. ☐

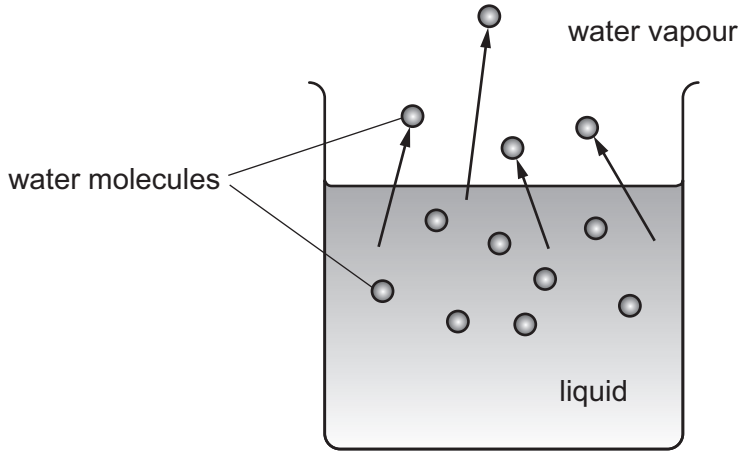
Elements in mixtures are joined by chemical bonds. ☐ [1]

(c) Magnesium carbonate reacts with an acid to make magnesium nitrate.

Which acid must be used in this reaction?

..... [1]

13 Chen draws a diagram to show water changing from a liquid to water vapour.



Complete the sentences.

All the water molecules in the liquid are moving.

Some of the molecules have more .....

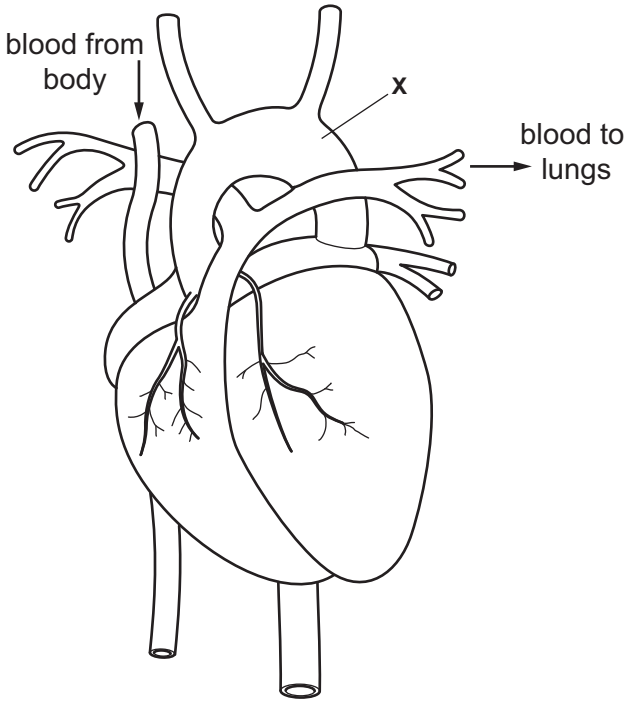
These molecules move ..... enough to escape the surface of the liquid.

This is called ..... .

This makes the liquid become ..... .

[4]

14 The diagram shows a model of the human heart.



(a) Complete the table about the composition of the blood **going to the lungs**.

Tick (✓) the **two** boxes that describe the correct composition of this blood.

concentration of carbon dioxide		**concentration of oxygen**	
high	low	high	low

[1]

(b) The blood vessel labelled **X** carries blood away from the heart.

(i) What name is given to this **type** of blood vessel?

.....

[1]

(ii) The blood vessel labelled **X** has very thick walls.

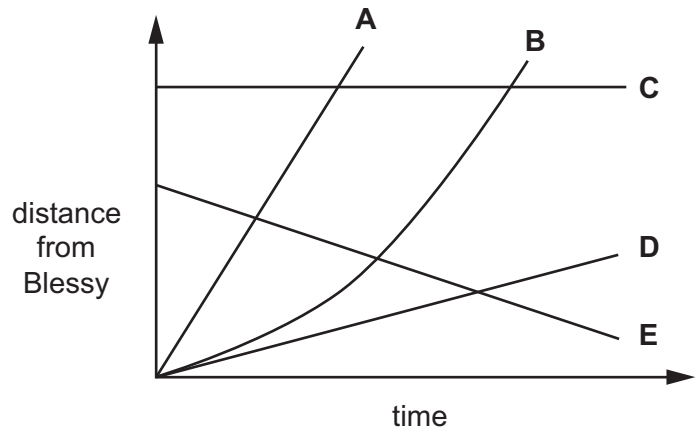
Explain why this is necessary.

.....

.....

[1]

15 Blessy draws five different distance/time graphs on the same axes.



(a) The distance axis shows how far an object is away from Blessy.

Which graph shows an object **moving towards** Blessy?

Circle the correct answer.

A **B** **C** **D** **E**

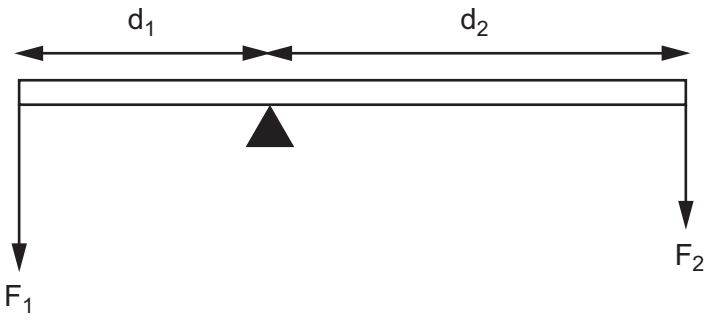
[1]

(b) Describe what is happening to the speed of object **B**.

.....

..... [1]

16 Lily draws a diagram to explain the principle of moments.



Use the diagram to explain the principle of moments.

.....

.....

.....

..... [2]

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