Cambridge Secondary 1 Progression Test
Question paper

Cambridge Secondary 1

45 minutes

Science Paper 1

Stage 7

9023677891

Name .....

Additional materials: Ruler

READ THESE INSTRUCTIONS FIRST

Answer **all** questions in the spaces provided on the question paper.

You should show all your working on the question paper.

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.

For Teacher's Use	
Page	**Mark**
1	
2	
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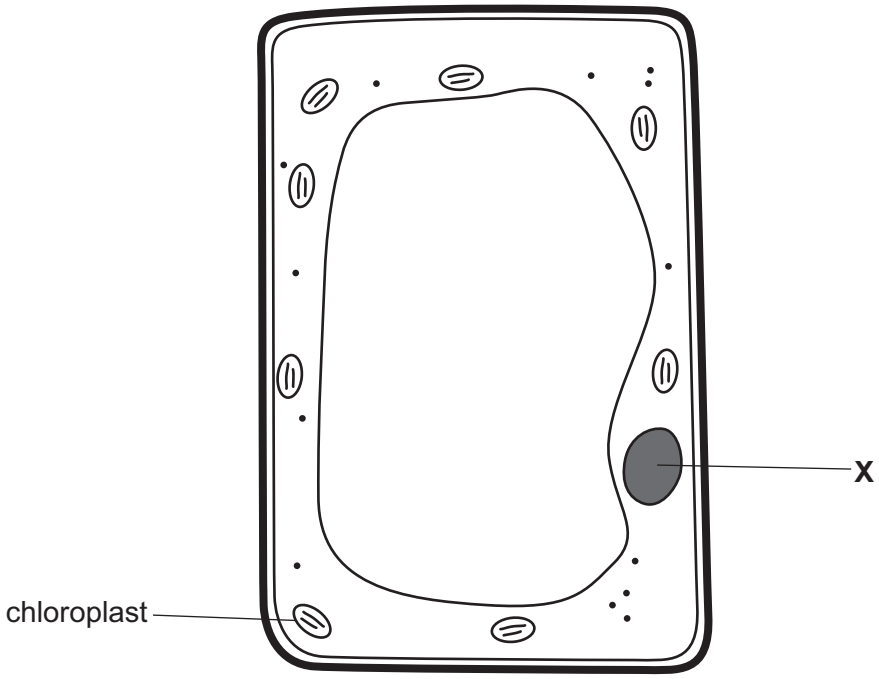
Total	

DC (NH/SW) 85619/10RP

CAMBRIDGE
International Examinations

1 The diagram shows what a plant cell looks like under a microscope.



(a) Name the part labelled **X**.

.....[1]

(b) State two features which you can see in the diagram that are **not** found in animal cells.

1.....

2.....[2]

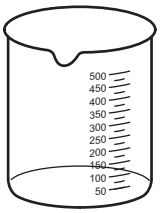
(c) Explain why a microscope must be used to see a plant cell like this.

.....

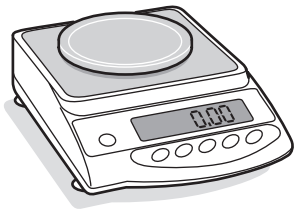
.....[1]

2 The pictures show some equipment found in science classrooms.

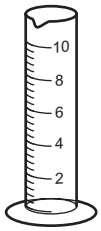
For Teacher's Use



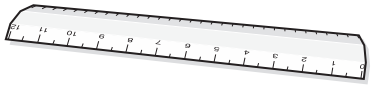
A



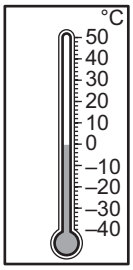
B



C



D



E

(a) Name object **E**.

.....[1]

(b) Write the **letter** of the piece of equipment **best** suited for each task.

Measuring the mass of a small rock 25 g. .....

Measuring the length of a book 10 cm. .....

Measuring the volume of a liquid 5 cm^3. .....

[3]

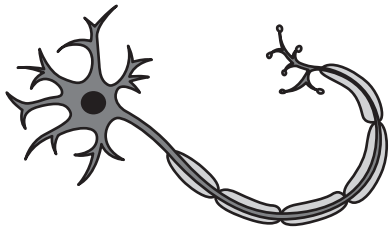
(c) Give **one** reason why equipment **A** is **not** suitable for keeping a liquid for a long time.

.....

.....[1]

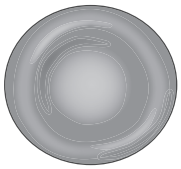
[Turn over

3 The diagrams show four cells labelled **A** to **D**.

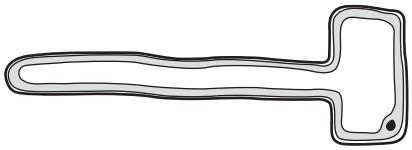


A

B



C



D

(a) Which of the cells is a **plant** cell?

Write the letter ..... [1]

(b) Name cell **B**.

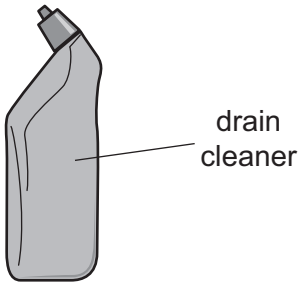
.....[1]

(c) Complete the table with the **letter** of the cell matched to its **function**.

function	letter
to carry signals around the body	.....
to absorb water	.....
to carry oxygen	.....

[3]

4 The picture shows a bottle of liquid drain cleaner.



The drain cleaner contains a solution of a chemical called sodium hydroxide.

Sodium hydroxide is an alkali.

(a) Suggest a **pH** value for sodium hydroxide solution.

.....[1]

(b) What type of reaction occurs when an acid is added to the drain cleaner?

.....[1]

Ken investigates the reaction between an acid called sulfuric acid and the drain cleaner.

He puts 100 cm^3 of drain cleaner into a beaker.

(c) What should Ken use to measure the pH value of the drain cleaner?

Circle the correct answer.

chalk powder **universal indicator** **thermometer** **water**

[1]

(d) Then Ken adds 10 cm^3 of acid to the drain cleaner.

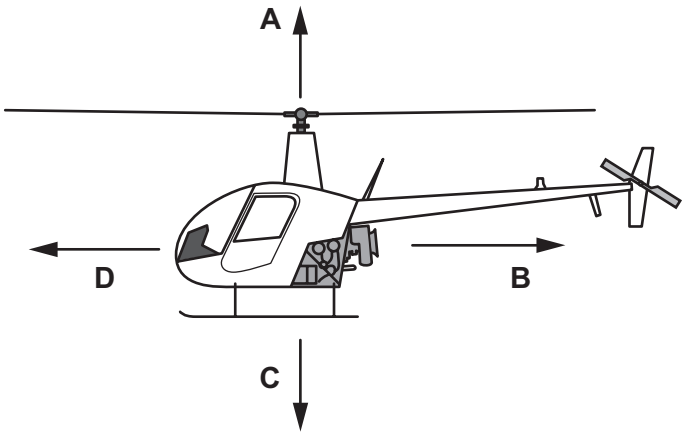
What should he do before he measures the pH value?

.....[1]

[Turn over

5 The diagram shows a helicopter in the air.

The arrows show the directions of the four forces which can act on it.

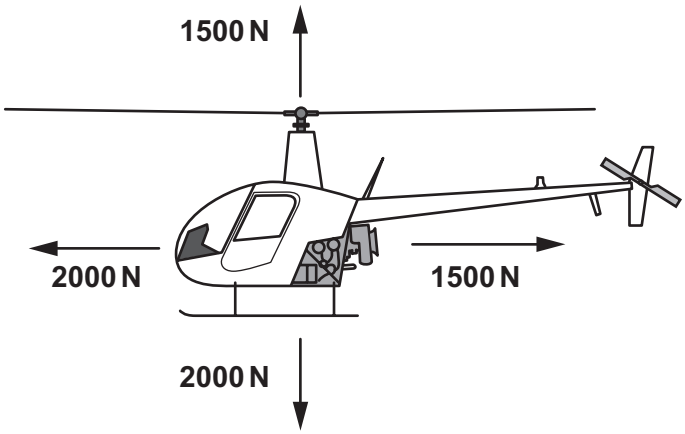


(a) **Two** of the forces must be equal for the helicopter to stay at the same height.

Which two forces?

..... **and** ..... [1]

The next diagram shows the sizes of the four forces at a different stage in its flight.

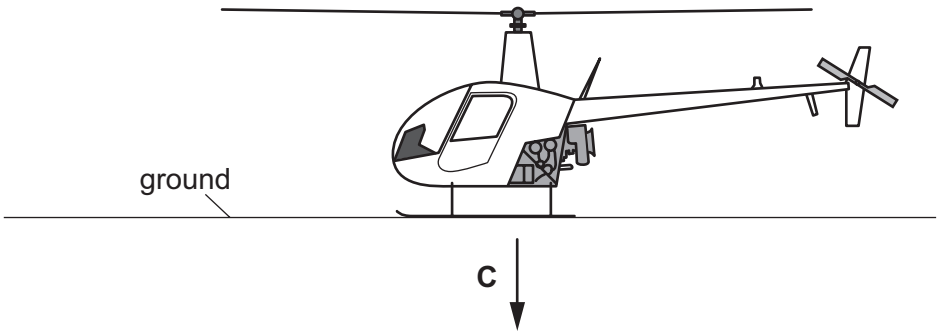


(b) Draw an arrow **on this diagram** to show which direction the helicopter will move. [1]

(c) The helicopter is now on the ground and the engine is turned off.

It is on level ground and there is no wind blowing.

The next diagram shows the direction of one force, **C**, acting on the helicopter.



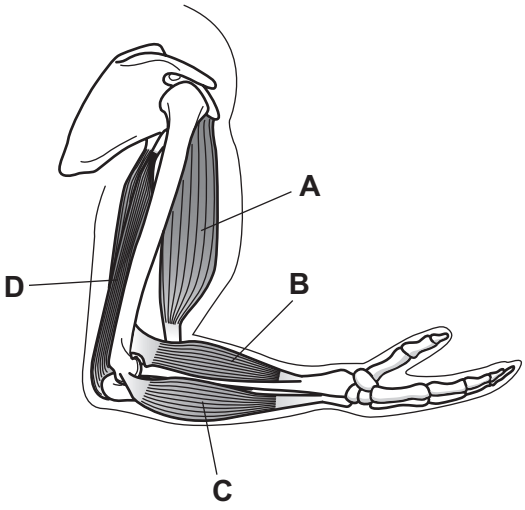
(i) Write down the **name** given to force **C**.

.....[1]

(ii) One other force is acting on the helicopter when it is on the ground.

Draw an arrow **on the diagram** to show the direction of this other force. [1]

6 The diagram shows the four main muscles, labelled **A** to **D**, in a human arm.



(a) Write down **two** letters of muscles which are an antagonistic pair.

..... **and** ..... [1]

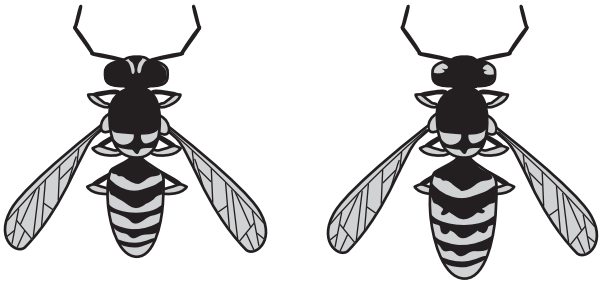
(b) Write the letter of the muscle which must **contract** to bend the hand upward at the wrist.

..... [1]

(c) Write the letter of the muscle which must **relax** to straighten the arm from the position shown in the diagram above.

..... [1]

7 The pictures show two insects, a hoverfly and a wasp.



hoverfly wasp

Both of these insects can be found living in the same places.

The wasp can give a very painful sting to an animal or another insect.

The hoverfly has no sting.

(a) Write down **one** advantage to the wasp of being able to sting.

.....

.....[1]

(b) Write down **one** advantage to the hoverfly of looking like a wasp.

.....

.....[1]

(c) Some wasps catch and eat other insects.

Which word describes one of these wasps?

Tick (✓) the correct box.

herbivore ☐

predator ☐

prey ☐

producer ☐

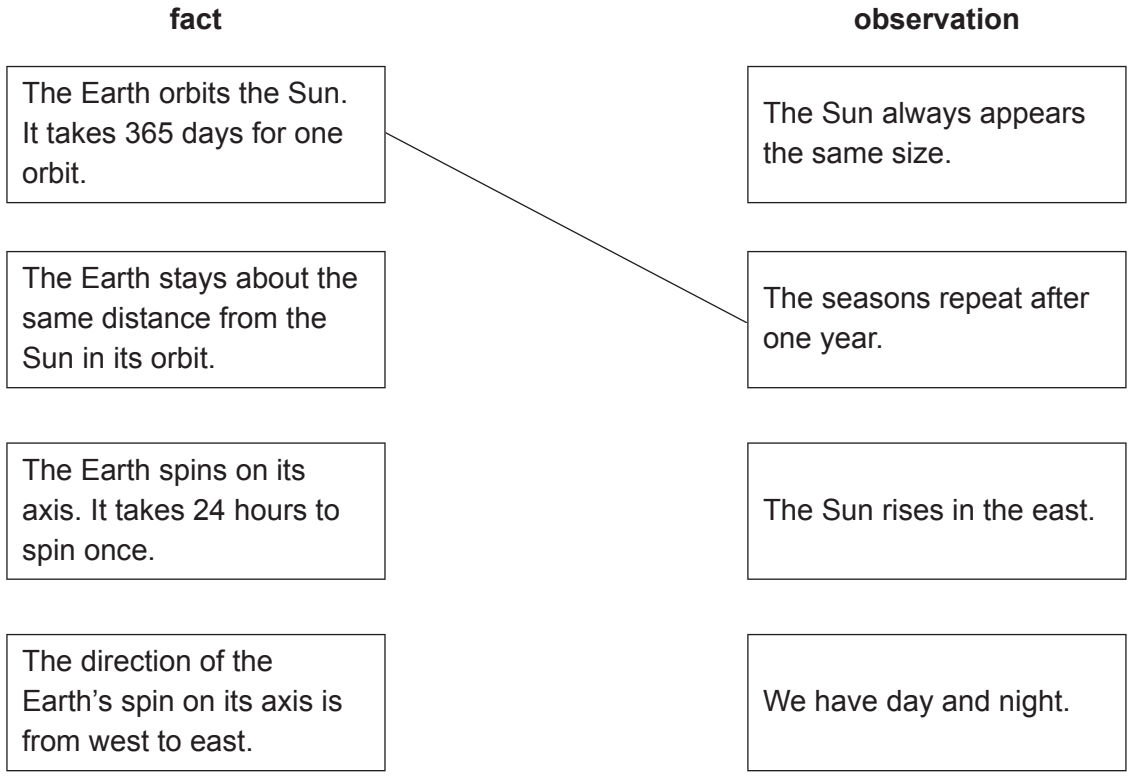
[1]

For Teacher's Use

8 The boxes show some facts about the Earth's movement and some observations.

(a) Draw a line from each **fact** to match its **observation**.

The first one has been done for you.



[2]

(b) Tick (✓) **one** box next to the planet that can **never** be seen in the sky **all** night.

Jupiter ☐

Mars ☐

Saturn ☐

Venus ☐

[1]

For Teacher's Use

9 This question is about states of matter.

(a) Complete the sentence using the correct states of matter.

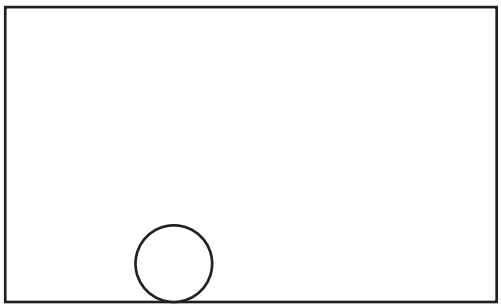
When a substance condenses, it changes from a .....

to a ..... . [1]

(b) In the box below, draw how the particles would appear in a liquid.

Draw at least **six** more particles.

The first particle has been drawn for you.



[1]

(c) The table shows the melting points and boiling points of three common substances.

substance	melting point in ºC	boiling point in ºC
nitrogen	–210	–196
water	0	100
iron	1538	2861

Choose a substance from the table which is:

a gas at 10 °C .....

a solid at 100 °C .....

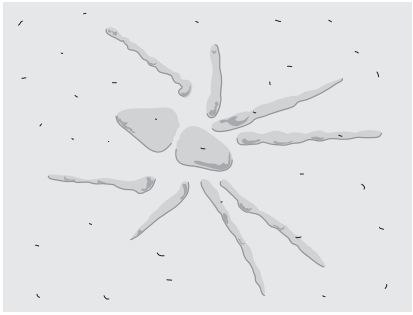
a liquid over the smallest range of temperatures .....

[3]

[Turn over

For Teacher's Use

10 The picture shows the preserved remains of a spider found in limestone.



(a) Write down the name given to the preserved remains of living things found in rock.

.....[1]

(b) Give **one** feature, seen in the picture, which shows this is a spider and not an insect.

.....[1]

(c) Remains of mammals and spiders are found in the same rocks.

Scientists have made these two observations:

- remains of mammals are only found in upper layers of rock
- remains of spiders are found in all layers of rock

What **two** conclusions can be made from these observations?

Tick (✓) **two** boxes.

mammals did not live at the same time as spiders	☐
spiders existed before mammals	☐
mammals could live in the same place as spiders	☐
mammals developed from spiders	☐
the spiders were eaten by the mammals	☐

[2]

11 The table gives some information about three metals.

For Teacher's Use

metal	mass of 1 cm^3 of metal in g	reaction with cold water	strength in MPa
aluminium	2.7	no reaction	125
steel	7.8	forms rust (iron oxide)	400
gold	19.3	no reaction	120

(a) Give one advantage **and** one disadvantage from the table of making cars from steel.

advantage .....

.....

disadvantage .....

.....[2]

(b) Give **one** reason from the table why aluminium is suitable for making drinks containers.

.....

.....[1]

(c) Give **one** reason from the table why gold is suitable for making jewellery.

.....

.....[1]

(d) Give **one** reason, **not** shown in the table, why gold is suitable for making jewellery.

.....

.....[1]

[Turn over

12 The astronomer Galileo published some drawings in 1610.

Galileo made these drawings by looking through his telescope.

These drawings show the planet Jupiter and its four moons on different dates.

 January 7, 1610	 January 8th	[CLOUDY] January 9th
 January 10th	 January 11th	 January 12th
 January 13th	[CLOUDY] January 14th	 January 15th

●	moon
○	Jupiter

(a) Write down the conclusion that Galileo made from these observations.

.....

.....[1]

(b) Write down **one** date when Galileo could see all four moons.

.....[1]

(c) Suggest **one** reason why Galileo could see less than four moons on some dates, even when there was no cloud.

.....

.....[1]

(d) We now know that Jupiter has more than four moons.

Suggest **one** reason why Galileo did not include the others in his drawings.

.....

.....[1]

(e) Some of the ideas that Galileo had about the Solar System were **not** popular at that time.

Write down **one** reason why.

.....

.....[1]

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