

CANDIDATE
NAME

CENTRE
NUMBER

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CANDIDATE
NUMBER

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SCIENCE

1113/02

Paper 2

April 2018

45 minutes

Candidates answer on the Question Paper.

Additional Materials: Pen Calculator
 Pencil
 Ruler

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 **16** printed pages.

1 Pierre plays a sport called rugby.

To keep fit he eats a special diet and exercises often.



(a) To improve his strength, Pierre eats lots of chicken.

(i) Name the **main nutrient** present in chicken.

..... [1]

(ii) Explain how this nutrient improves Pierre's strength.

..... [1]

(b) To prepare for a game of rugby, Pierre eats lots of starchy foods such as pasta.

Explain why it is important for Pierre to eat **starchy** food before a strenuous game of rugby.

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

2 (a) Tick (✓) the boxes next to the **two** correct sentences about gases.

Gases can flow to fill a container.

Gases only form at temperatures above 100 °C.

The particles in a gas are arranged randomly.

The particles in a gas are close together.

The particles in a gas can only vibrate.

[2]

(b) A gas changes into a liquid during condensation.

Describe what happens to the particles in a substance during condensation.

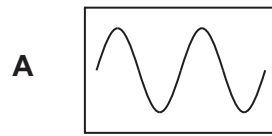
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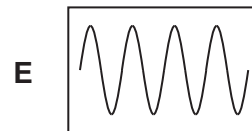
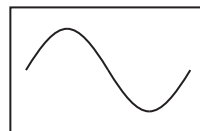
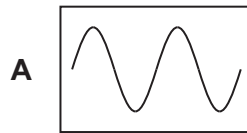
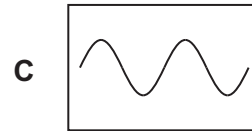
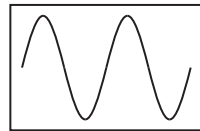
..... [2]

3 Gabriella makes a sound.

She looks at the trace it makes on an oscilloscope.



She makes four different sounds and looks at their traces.



Complete the sentences.

Choose from the following letters.

B

C

D

E

The sound with a higher pitch than **A** is

The sound with a larger volume (louder) than **A** is

The sound with a smaller frequency than **A** is

The sound with a smaller amplitude than **A** is

[4]

4 The drawing shows a mammal called the Philippine tarsier.

Tarsiers live in rainforests, jumping from tree to tree.

They rarely touch the ground.

They sleep during the day and hunt for insects at night.



(a) Use the drawing to suggest **three** ways tarsiers are adapted to their habitat.

- 1
- 2
- 3

[3]

(b) Philippine tarsiers are an endangered species.

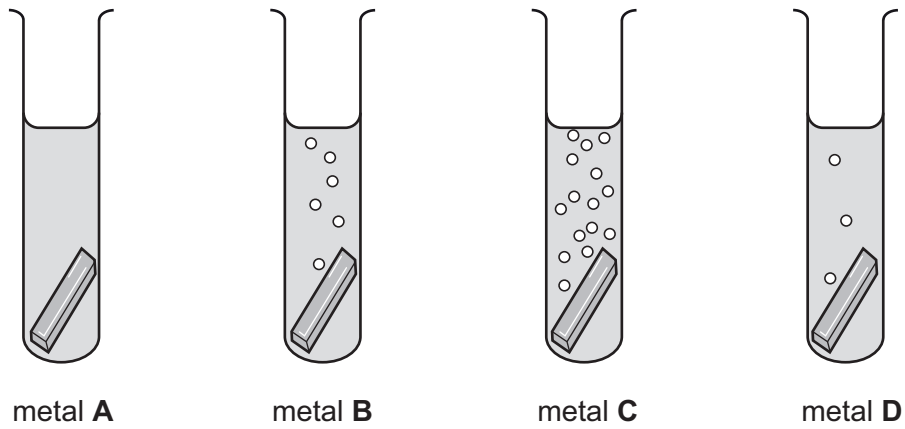
Tourists have to pay to photograph these tarsiers in special nature reserves.

Suggest **two** ways this can help to increase the number of these tarsiers in the wild.

- 1
- 2

[2]

- 5 Yuri investigates the reaction of metals with acids.
He adds different metals to dilute hydrochloric acid.
The diagram shows his results.



- (a) Complete the column heading and table to show Yuri's results.

metal
A	0
B	6
C
D

[2]

- (b) Describe how Yuri could improve his method to find the volume of gas produced.

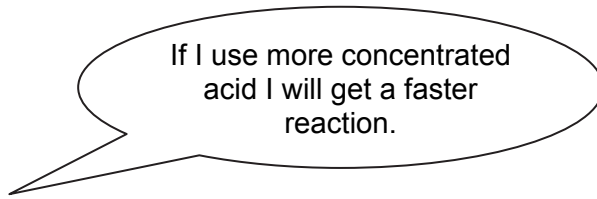
Tick (✓) the box next to the correct method.

- collect the gas in a measuring cylinder
- collect the gas in a test tube
- repeat the experiment the same way
- use a smaller piece of metal

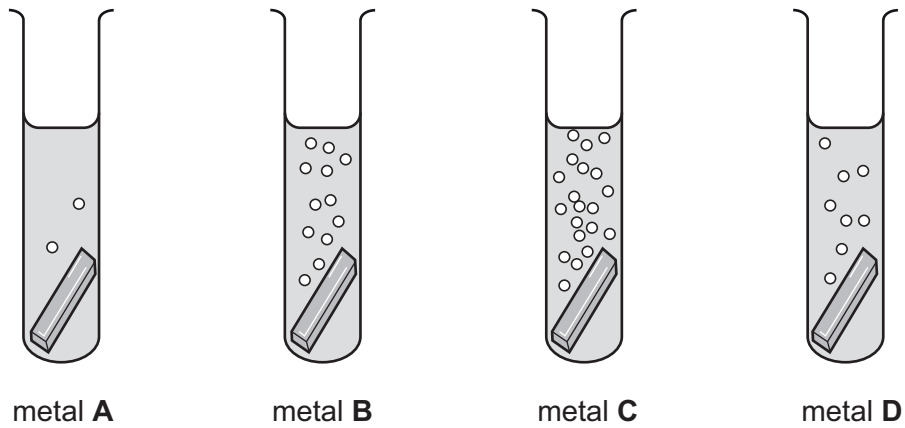
[1]

(c) Yuri repeats his experiment using more concentrated acid.

Yuri makes this prediction.



The diagram shows his results for his second experiment.



Is Yuri's prediction supported by his results?

yes no

Explain your answer.

.....
..... [1]

6 There are many objects in space.

(a) Which object is a source of light?

Circle the correct answer.

asteroid

Earth

Moon

planet

star

[1]

(b) Comets are **not** sources of light.

Explain how we can see a comet even though it is not a source of light.

.....

.....

..... [2]

7 The dodo became extinct in the 17th century.



- The dodo was a flightless bird which lived on the island of Mauritius.
- The dodos built their nests on the ground.
- Dodos had never met humans before humans arrived on the island. The dodos were not afraid of the humans.
- Humans brought new animals to the island, such as cats, dogs and rats.
- The humans removed most of the forest where the dodos lived to build new homes and to create farmland.

Write down **two** reasons why you think that the dodo became extinct.

1

.....

2

.....

[2]

8 When lithium is added to water it forms lithium hydroxide and a gas.

(a) Complete the word equation for the reaction between lithium and water.



[3]

(b) The chemical symbol for lithium is Li.

The formula for water is H₂O.

The formula for lithium hydroxide is LiOH.

Which of these substances is an element?

Choose from **lithium**, **water** or **lithium hydroxide**.

.....

Explain your answer.

.....

.....

[2]

(c) Lithium is in Group 1 of the Periodic Table.

The diagram shows some of the elements in Group 1 of the Periodic Table.

Na	sodium
K	potassium
Rb	rubidium
Cs	caesium
Fr	francium

Describe how the reactivity of the Group 1 metals changes as you go down the group.

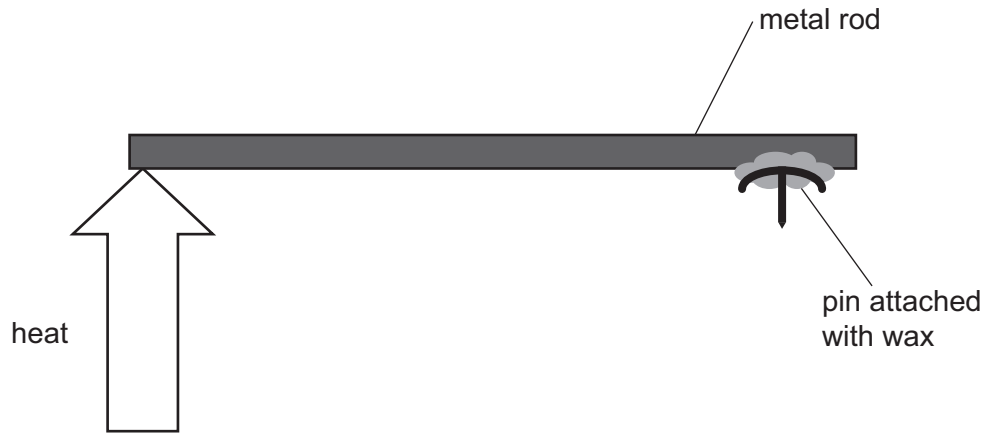
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[1]

9 Blessy investigates conduction of thermal (heat) energy.

She heats a metal rod.

The metal rod has a pin attached with wax.



When the end of the metal rod is hot, the wax melts and the pin falls.

Blessy must think about the safety hazards of this investigation.

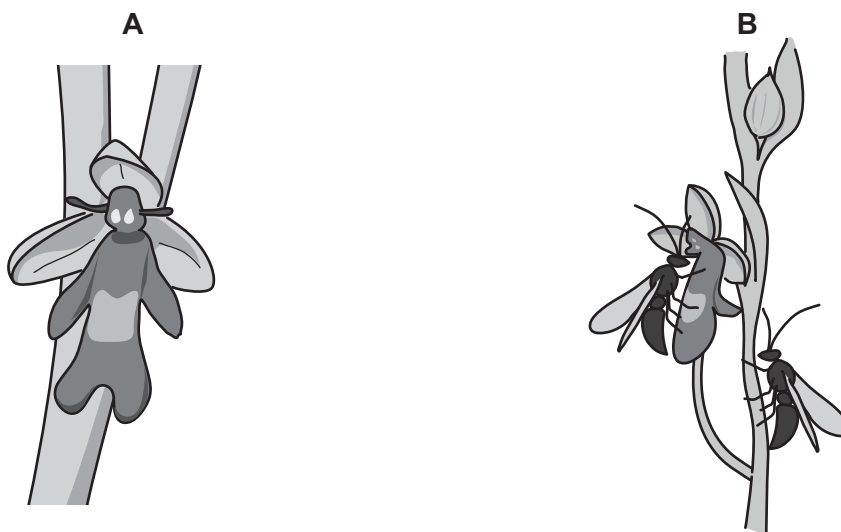
Describe two of these **safety hazards**.

- 1
-
- 2
-

[2]

10 Diagram **A** shows the flower of a fly orchid.

Diagram **B** shows a fly orchid flower being visited by insects.



(a) The flowers of this orchid release chemicals which smell like a female fly.

Suggest **two** reasons why male flies travel great distances to visit these flowers.

- 1
- 2

[2]

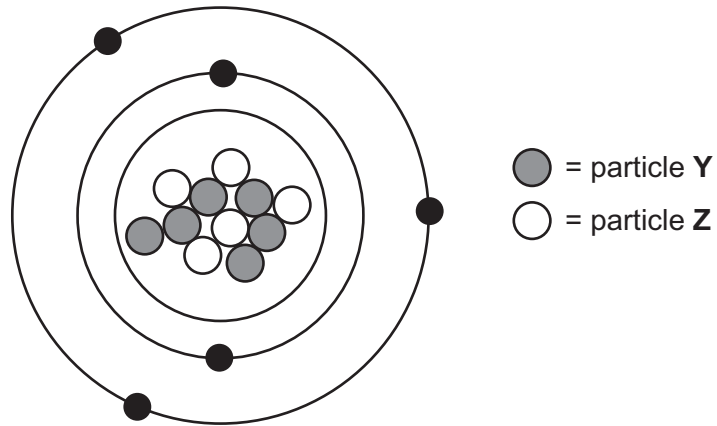
(b) The orchid is pollinated by insects.

What is meant by the term **pollination**?

.....

[2]

11 The diagram shows the structure of a boron atom.



Name particles Y and Z.

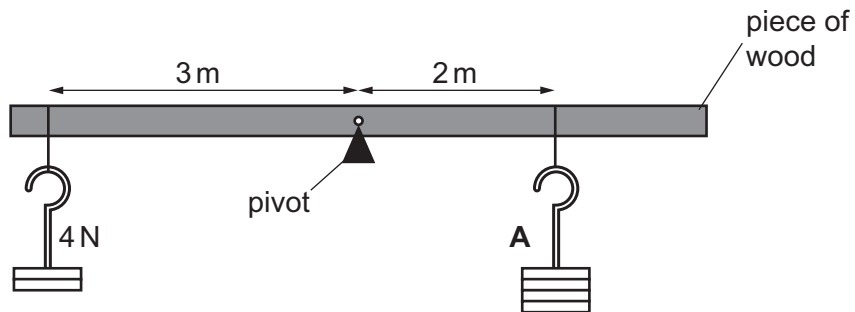
particle Y

particle Z

[2]

12 Rajiv puts a piece of wood on a pivot.

He adds weights at different distances from the pivot.



The wood balances.

Calculate the weight labelled A in the diagram.

Weight of A = N [2]

13 Plants are able to use light energy to make their own food.

Name **one substance** that plants use to make their own food by this process.

..... [1]

14 Tick (✓) the **three** correct properties of magnets.

Like poles of magnets repel.

Magnets always have N and S written on them.

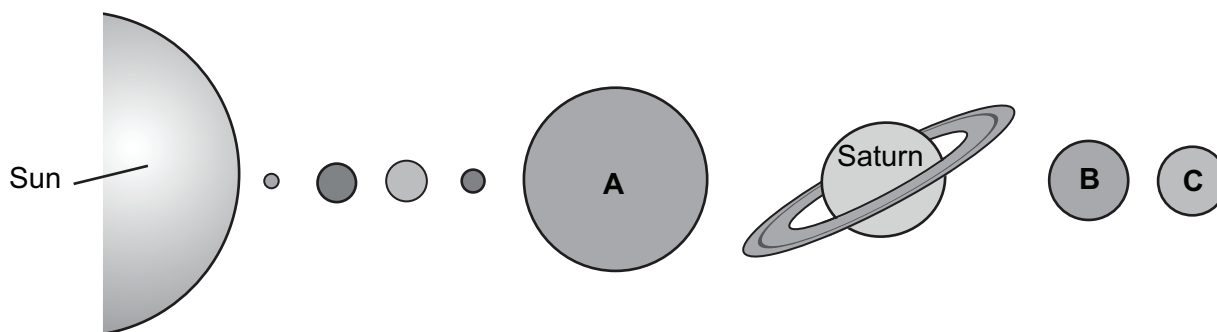
Magnets do **not** work if they are in water.

Magnets attract iron, cobalt and nickel.

The force of attraction is greater at the poles than in the middle of the magnet.

[2]

15 Planets orbit the Sun.



Write down the names of planets **A**, **B** and **C**.

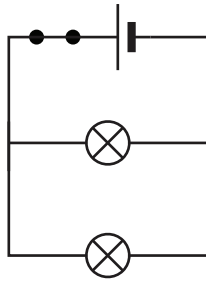
A

B

C

[1]

16 Priya connects an electrical circuit.



(a) What type of circuit is shown in the diagram?

Circle the correct answer.

parallel circuit with closed switch

series circuit with closed switch

parallel circuit with open switch

parallel and series circuit with open switch

series circuit with open switch

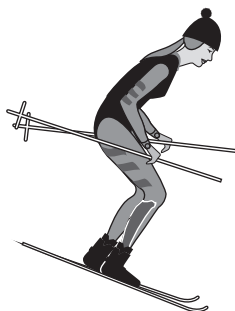
[1]

(b) Priya wants to measure the current in the circuit.

What is the name of the meter she uses to measure the current?

..... [1]

17 Jamila is a skier.



Here are the time and distance measurements for three of Jamila's journeys.

journey	time in seconds	distance in metres
A	30	40
B	60	120
C	60	30

Journey **B** has the greatest average speed.

Explain why.

.....

.....

.....

..... [2]

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