

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
Cambridge Checkpoint

CANDIDATE
NAME

CENTRE
NUMBER

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NUMBER

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* 20928330114 *

SCIENCE

1113/02

Paper 2

April/May 2010

45 minutes

Candidates answer on the Question Paper.

Additional Materials are required: 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 a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

DO NOT WRITE IN ANY BARCODES.

Answer **all** questions.

You should show **all** your working in the booklet.

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

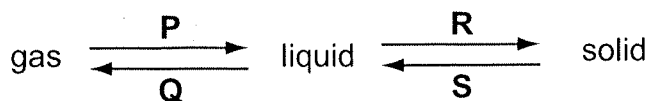
The total number of marks for this paper is 50.

This document consists of 15 printed pages and 1 blank page.





1 The diagram shows how the three states of matter can be changed into each other.



Choose **one** word from the list to describe each change.

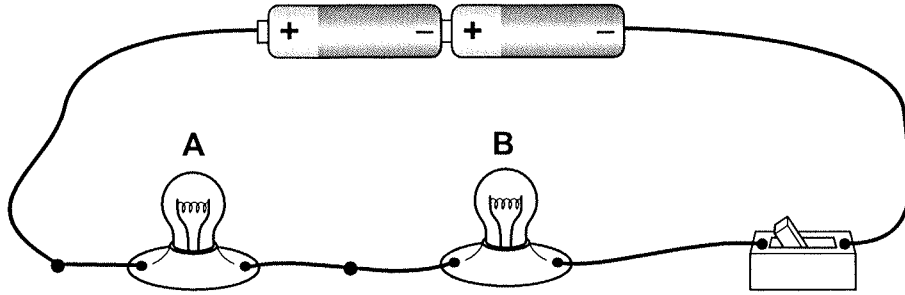
- condense
- dissolve
- evaporate
- freeze
- melt

- (a) P [1]
- (b) Q [1]
- (c) R [1]
- (d) S [1]

DO NOT WRITE IN THIS MARGIN



2 The diagram shows an electric circuit. Both lamps are alight.



(a) Another cell is added in series with the original two cells.

What would happen to the brightness of the lamps?

Tick (✓) the correct box.

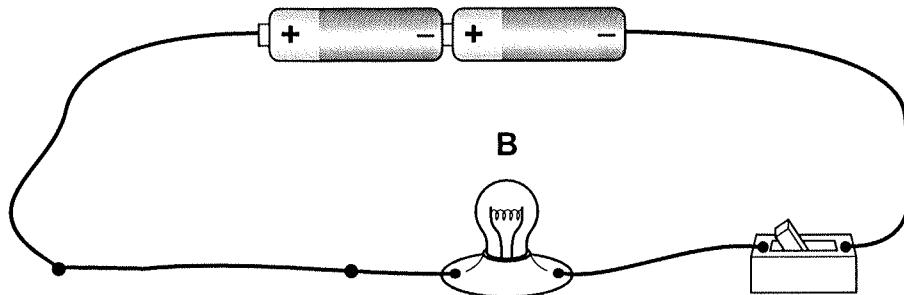
stay the same brightness

dimmer

brighter

[1]

(b) Lamp A is removed as shown in the diagram.



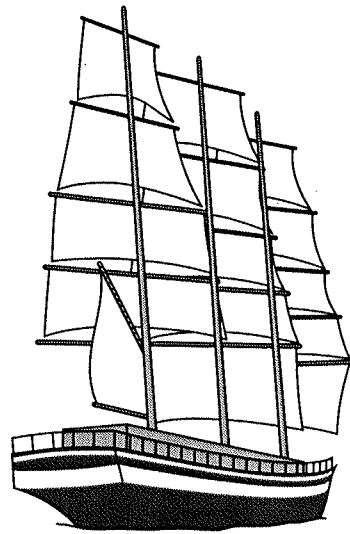
How would lamp B be affected?

..... [1]



- 3 Read the article about Ferdinand Magellan and Man's first voyage around the World. Use the information in this article and your biological knowledge to answer the questions.

Magellan's Voyage. Proof that the World is round!



In 1519, Ferdinand Magellan sailed from Spain to find a western route to the Spice Islands. He took 237 men in five ships.

Each ship carried a supply of basic foods including cheese, flour, oil, meat and vegetables. There were also some live animals, including chickens.

The ships eventually reached the Spice Islands but only one continued the journey back to Spain. This was the *Victoria*. The sailors on the *Victoria* got very ill before they arrived home. They had bleeding gums and sores which would not heal. One sailor though, called Elcarno, used to eat a spoonful of fruit jam every day. He did not develop any of these symptoms.



(a) Magellan's ships set sail with a balanced diet.

What is meant by 'a balanced diet'?

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

(b) Suggest why Magellan took some live animals with him on the voyage.

..... [1]

(c) Most of the sailors on the *Victoria* developed a deficiency disease called scurvy.

(i) Describe **one** symptom of scurvy.

..... [1]

(ii) What is the cause of scurvy?

..... [1]

(iii) Suggest why Elcarno did **not** develop this deficiency disease.

..... [1]

DO NOT WRITE IN THIS MARGIN



- 4 Complete the table by putting a tick (✓) in the correct box under compounds, mixtures or elements.

Only tick (✓) **one** box in each row.

description	compounds	mixtures	elements
can only be separated by chemical methods			
can be separated by physical methods			
made of only one type of atom			
made by a chemical reaction			
cannot be separated into anything simpler			
keeps the properties of the substances it is made of			

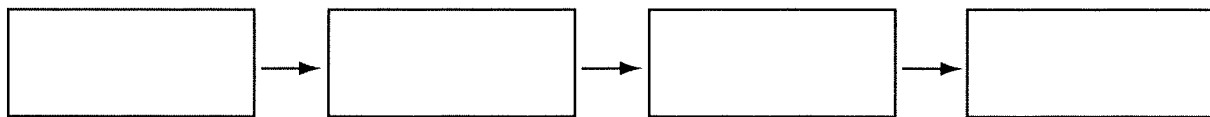
[3]



5 Read this information about plants and animals in a garden. Use the information to answer the questions.

- A gardener grows cabbages in her garden.
- During the summer some of the cabbages are eaten by caterpillars.
- Blackbirds eat some of the caterpillars.
- Snakes eat some of the blackbirds.

(a) (i) Use the information to complete the food chain.
Write your answers in the boxes.



[2]

(ii) Name **one** predator in this food chain.

..... [1]

(b) The gardener sprays her cabbages with a chemical to kill the caterpillars.

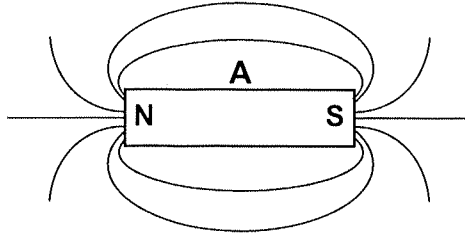
What will happen to the number of blackbirds?
Explain why.

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

DO NOT WRITE IN THIS MARGIN



6 The diagram shows a magnet **A** and its magnetic field.



(a) What do the letters **N** and **S** indicate?

..... and [1]

(b) Choose the magnetic materials from the list. Tick (✓) **two** boxes.

- wood
- aluminium
- iron
- gold
- steel
- copper

[2]

(c) Another magnet **B** is placed close to magnet **A** as shown in the diagram.



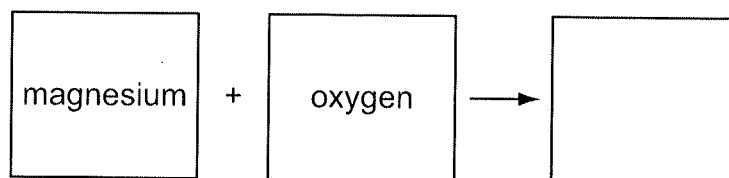
State how the two magnets will affect each other.

..... [1]



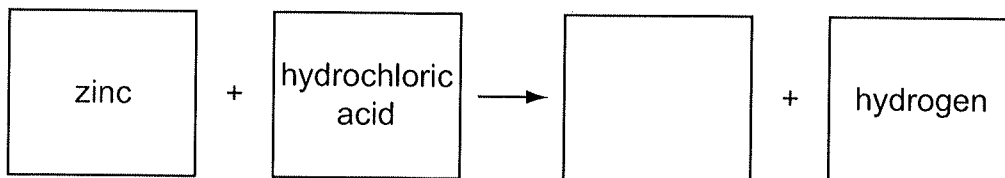
7 Complete the word equations for these reactions.

(a)



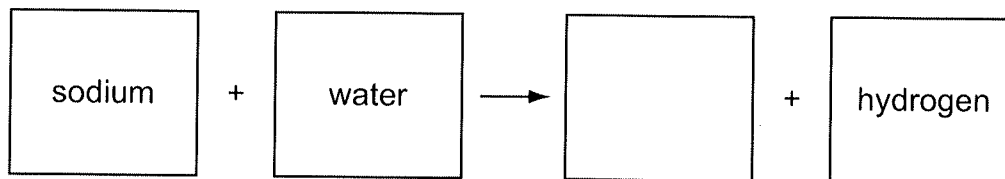
[1]

(b)



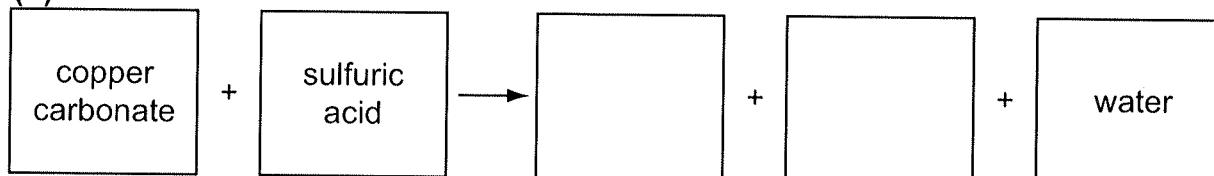
[1]

(c)



[1]

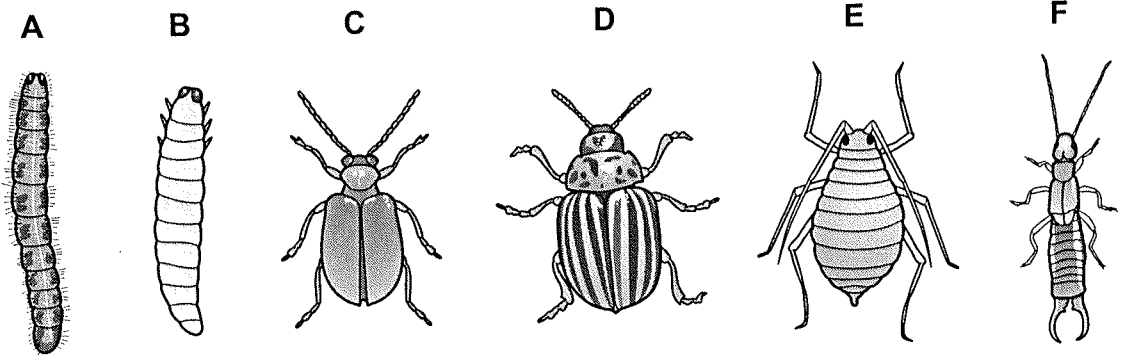
(d)



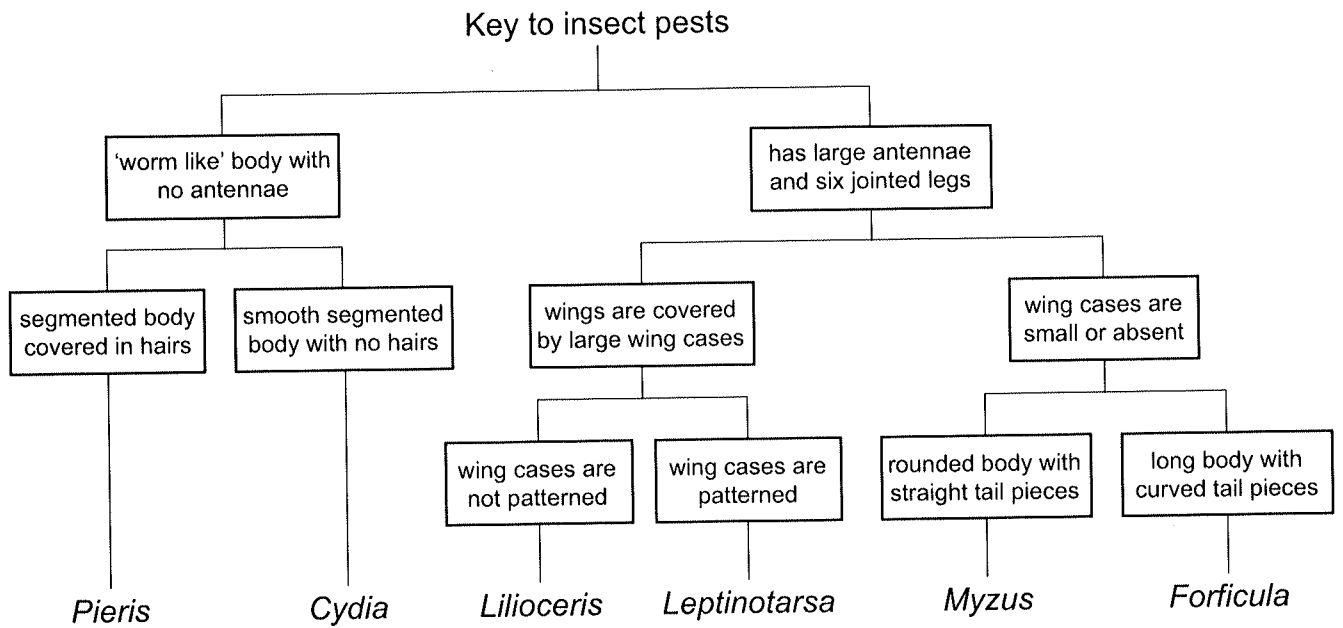
[1]



8 A student grows lots of different plants in his garden. His plants are being eaten by insect pests. These are some of the pests he finds in his garden.



He uses this key to identify these pests .



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- (a) The table gives the scientific names of the six pests.
Use the key to identify each pest then match the name of each pest with its correct letter.

Complete the table by writing the letters **A** to **F** in the six empty spaces.

Name of pest	Letter
<i>Cydia</i>	
<i>Forficula</i>	
<i>Leptinotarsa</i>	
<i>Lilioceris</i>	
<i>Myzus</i>	
<i>Pieris</i>	

[3]

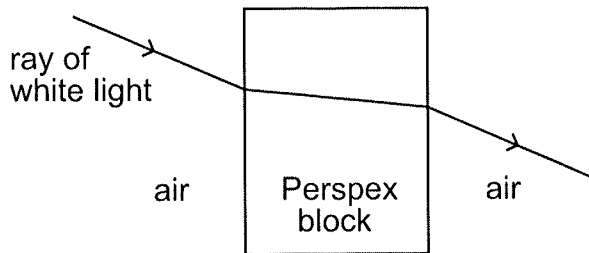
- (b) Give **two** characteristic features of insects that you can see on the diagram of insect **D**.

.....

..... [2]



9 (a) A ray of white light is entering a Perspex block.



(i) Most of the light that hits the block enters it. A small amount does not.

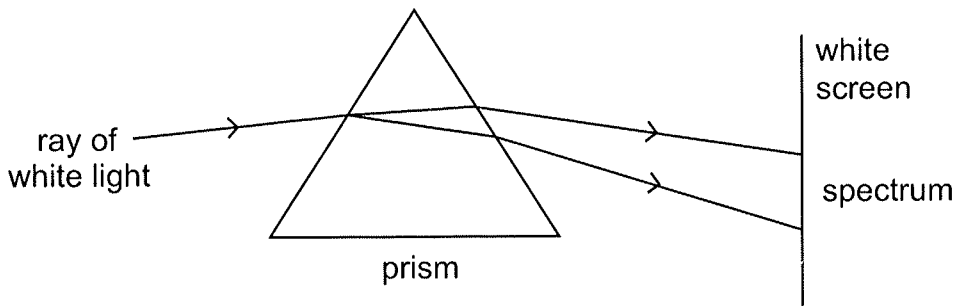
What happens to the light that does **not** enter the block?

..... [1]

(ii) The light that enters the block changes direction. What is this process called?

..... [1]

(b) White light is passed through a triangular prism as shown in the diagram.



Write the letter **R** on the screen on the diagram where red light will be seen.
Write the letter **V** on the screen on the diagram where violet light will be seen.

[1]

(c) A red filter is placed between the prism and the screen.
What happens to the spectrum seen on the screen?

Underline the correct answer.

The red part of the spectrum disappears and the other colours remain.

The red part of the spectrum remains and the other colours disappear.

The whole spectrum turns red.

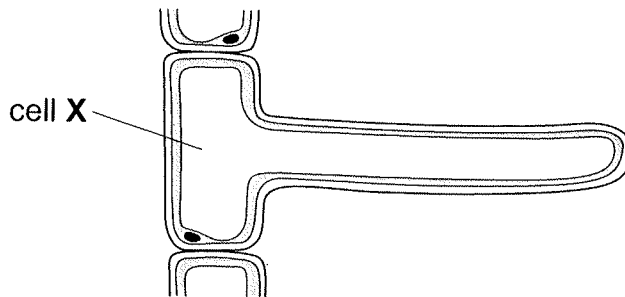
[1]

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10 Plants take in water and mineral salts through their roots.

(a) The diagram shows a cell in a plant root.



(i) Name cell X.

..... [1]

(ii) Explain how cell X is adapted to absorb water from the soil.

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

(b) Plants need to take in minerals to help with growth.

(i) Which of these minerals is required for encouraging strong growth?

Underline the correct answer.

carbonate hydroxide nitrate oxide [1]

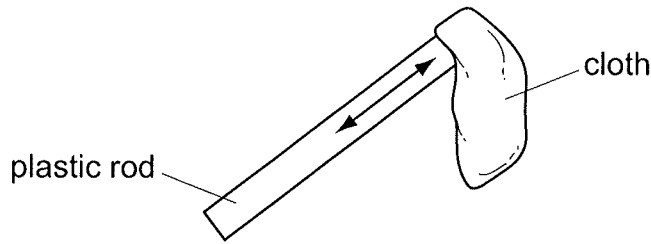
(ii) Essential minerals can be applied to the soil as artificial fertilisers or organic fertilisers.

Name **one** organic fertiliser.

..... [1]



11 When a plastic rod is rubbed on a cloth it becomes charged.



(a) Choose from the list of words to complete the following sentences.

- the same as
- larger than
- opposite to
- smaller than

(i) The amount of charge on the rod is the amount of charge on the cloth. [1]

(ii) The sign of the charge on the rod is the sign of the charge on the cloth. [1]

(b) Choose from the list of words to complete these sentences.

Each answer may be used once, more than once or not at all.

- attract
- feel no force
- repel

(i) When two polythene rods are rubbed and placed near each other they will [1]

(ii) When a polythene rod and an acetate rod are rubbed and placed near each other they will [1]

(iii) When a charged rod is placed near an uncharged object they will [1]

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12 Here is a part of the Periodic Table.

I	II					III	IV	V	VI	VII	0
Li							C	N	O		He
Na											
	Ca										

Use only the information in the table above to answer the following questions.

Give the **symbols** of:

(a) two elements in the same group

..... [1]

(b) an element that is an inert gas

..... [1]

(c) an element that is a non-metal solid at room temperature

..... [1]

(d) an element that is in the third period

..... [1]

(e) an element that is a metal.

..... [1]



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