

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
Cambridge Checkpoint

CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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SCIENCE

1113/01

Paper 1

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 **12** printed pages.



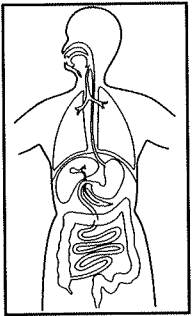
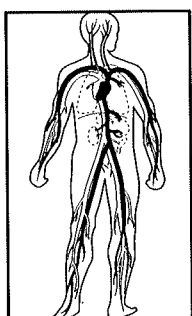
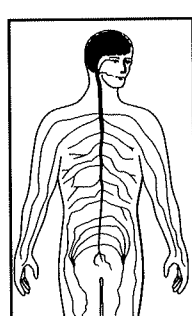
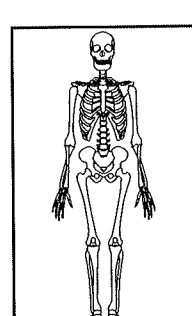


1 The diagrams show four major human organ systems.

Draw straight lines to join each organ system to its correct name.

Then draw straight lines to join the name of each system to its correct function.

One has been done for you.

	name of organ system	function
	<div style="border: 1px solid black; padding: 10px; text-align: center;">circulatory system</div>	<div style="border: 1px solid black; padding: 10px; text-align: center;">transports substances around the body</div>
	<div style="border: 1px solid black; padding: 10px; text-align: center;">digestive system</div>	<div style="border: 1px solid black; padding: 10px; text-align: center;">breaks down food and absorbs nutrients</div>
	<div style="border: 1px solid black; padding: 10px; text-align: center;">nervous system</div>	<div style="border: 1px solid black; padding: 10px; text-align: center;">co-ordinates and controls actions</div>
	<div style="border: 1px solid black; padding: 10px; text-align: center;">skeletal system</div>	<div style="border: 1px solid black; padding: 10px; text-align: center;">provides support, protection and allows movement</div>

[3]



2 (a) Write down the useful energy outputs from

(i) a torch

(ii) an oven.

[2]

(b) In each of these cases, other energy is released and wasted.

Write down **one** other form of energy released from a torch which is wasted energy.

..... [1]

(c) State the form of energy provided by the battery in the torch.

..... [1]



- 3 In four experiments, zinc is added to acid to investigate how the speed of reaction can be changed.

In the table, write **more**, **less** or **the same** in the final column to show the effect of each change.

change made	time for complete reaction of zinc after the change
Zinc powder is used instead of zinc lumps.	
The acid is made more dilute.	
The temperature of the reaction is increased.	
A catalyst is added instead of having no catalyst.	

[4]



4 There are seven characteristics shared by all living organisms.

(a) Complete the following list.

Sensitivity

.....
.....
.....
.....
.....
.....
.....

[3]

(b) Which process releases energy from food?

..... [1]

(c) Which process represents the removal of waste?

..... [1]



- 5 The world's human population continues to increase. This increase puts pressure on natural resources and increases pollution.

(a) Name **one natural** factor which may limit human population growth.

..... [1]

(b) Pollution causes large clouds of smog to accumulate over some cities.

Explain **one** effect this may have on the plant life below the cloud.

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

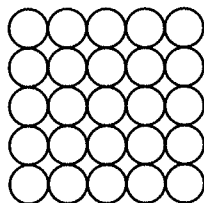


6 Solids, liquids and gases all expand when heated.

(a) Which of these expands **most** when heated?

..... [1]

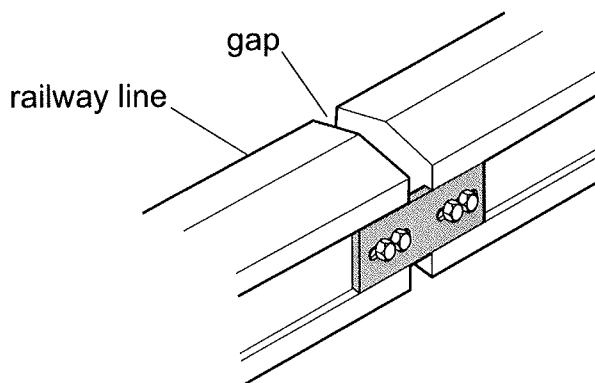
(b) The diagram shows the particles in a solid at 100°C . The solid has a melting point of 300°C .



Describe what happens to the particles in the solid when it is heated to 200°C .

..... [1]

(c) Explain why small gaps are left between lengths of railway track.



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



7 (a) What is the chemical symbol for copper?

..... [1]

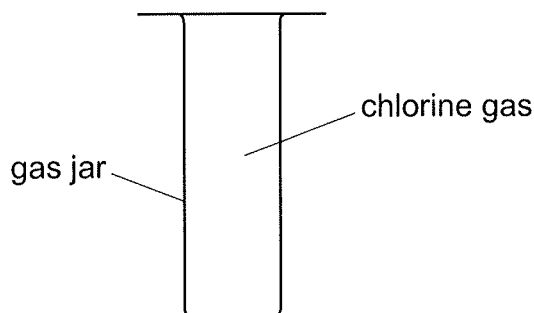
(b) (i) How many different elements are present in the substance with the formula $(\text{NH}_4)_2\text{SO}_4$?

..... [1]

(ii) Give the names of any **two** of these elements.

..... and [2]

(c) The gas in the gas jar consists of chlorine molecules, Cl_2 .



What is the name given to the smaller particles which have joined to form a chlorine molecule?

..... [1]



8 The photograph shows part of a dandelion plant.



(a) Bees are attracted to dandelion flowers and they pollinate them.

(i) What attracts bees to dandelion flowers?

..... [1]

(ii) Explain what is meant by pollination.

.....
 [2]

(b) Dandelion seeds must be moved away from the parent plant.

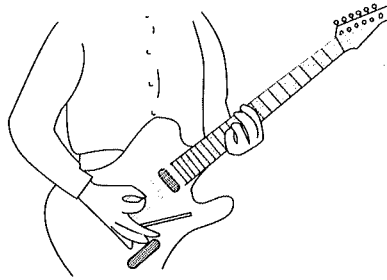
(i) Why do seeds need to be dispersed away from the parent plant?

..... [1]

(ii) Use the information given in the photograph to suggest how these seeds are dispersed. Give a reason for your answer.

method of dispersal

reason [2]



Sound waves travel from a vibrating guitar string to the ear of a listener by moving air particles.

(a) In what way are the air particles moving?

..... [2]

(b) How does this movement change if the guitar string is plucked harder?

..... [1]

(c) What does the listener notice about the sound heard when this happens?

..... [1]

(d) What is the effect heard if the frequency of vibration of the string increases?

..... [1]



10 Equations 1, 2 and 3 show chemical reactions.

1 copper carbonate \rightarrow copper oxide + carbon dioxide

2 copper sulfate + zinc \rightarrow zinc sulfate + copper

3 sodium + hydrochloric
hydroxide acid \rightarrow sodium + water
chloride

(a) Give the number of the equation which represents

(i) a displacement reaction [1]

(ii) a neutralisation reaction. [1]

(b) Look at equation 2.

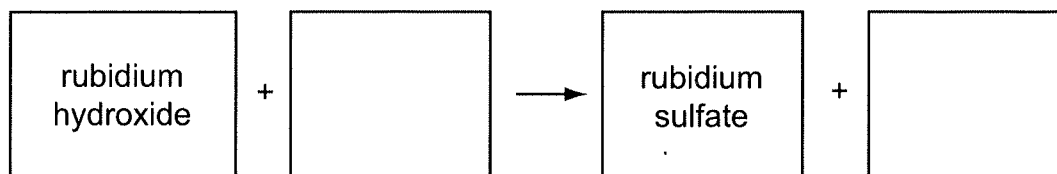
What would you expect to happen if copper was added to zinc sulfate solution?

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

(c) Rubidium is in the same group of the Periodic Table as sodium.

Both rubidium and its compounds have similar properties to sodium and its compounds.

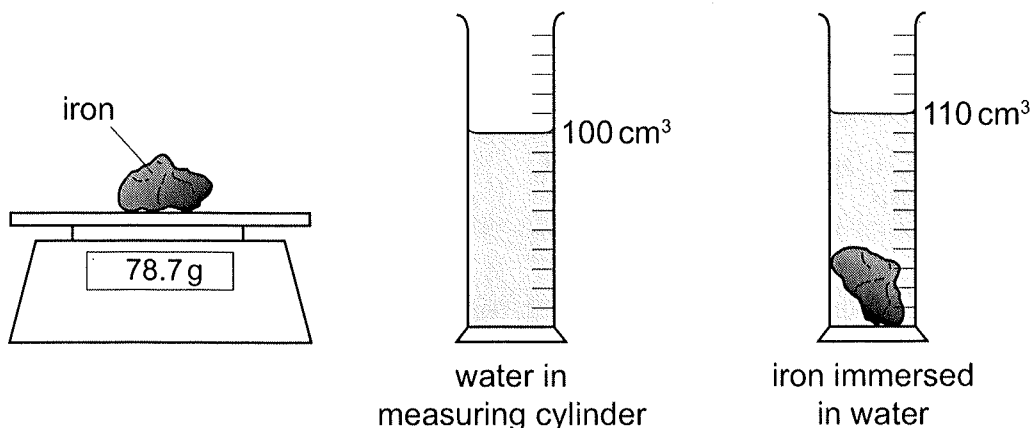
Fill in the gaps in the equation. You can use equation 3 above to help you.



[2]



- 11 This apparatus is used to find the density of an irregular shaped piece of iron. The results are shown in the diagrams.



- (a) What is the name of the apparatus used to measure the mass of the piece of iron?

..... [1]

- (b) What is the mass of the piece of iron?

[1]

- (c) What is the volume of the piece of iron? cm^3 [1]

- (d) Calculate the density of the piece of iron.

Show your working, and give the correct unit with your answer.

..... [3]

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