SCIENCE
Paper 2

Candidates answer on the Question Paper.
Additional Materials: Pen Pencil Ruler Calculator

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name in the spaces at the top of this page.
Write in dark blue or black pen.

DO NOT WRITE IN ANY BARCODES.

Answer all questions.

The number of marks is given in brackets [ ] at the end of each question or part question.
You should show all your working in the booklet.
The total number of marks for this paper is 50.

For Examiner's Use

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Total
1 The diagram shows the location of some human organs.

(a) Write down the name of the organ A.

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

(b) What is the function of organ B?

..........................................................................................................................
2 Look at the words in the list and decide which one best fits in the following sentences.

You may only use a word once.

dull
shiny
smooth
soft
strong

If you look at a brick wall, you cannot see your face in it because its surface is

It is very easy to slip on ice because its surface is

Steel does not break because it is a very

Butter is easy to cut because it is

[3]
3  The diagram shows the Earth with rays of light reaching it from the Sun.

(a) Gently shade in that part of the Earth that is experiencing night time.

(b) Write the letter N at any point on the diagram where the time will be approximately noon and a letter M where the time will be approximately midnight.
4 Joe is in his kitchen on a cold day boiling pasta.

The windows have misted up.

His friends try to explain what has happened.

Steam from the boiling water condensed on the windows.

The windows got hot and sweaty because it is hot in here.

The windows need a clean then they will not mist up.

The water vapour in the air has condensed on the cold windows.

Tick (✓) two statements that explain best what has happened.
5 Jamil has a block of wood.

He uses a force meter as shown in the diagram.

(a) What is he measuring?

Circle the correct answer.

friction  mass  upthrust  weight

(b) Write down the measurement shown on the force meter.

_________________________ N

[1]
7 Food chains tell us about feeding relationships.

This chain has four living things, (A, B, C and D).

A → B → C → D

Use this chain to answer the following questions.

(a) What do the arrows mean?

Tick (✔) one box.

- hunts
- is bigger than
- is food for
- is more than

(b) What word describes living thing A?

........................................................................................................................................................................................................................................[1]
(c) Which two words describe D?

Tick (✓) two boxes.

- carnivore
- herbivore
- predator
- prey

(d) Circle the living things from the food chain that are consumers.
8 The flow chart shows part of the water cycle.

(a) What is the name of process A?

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

(b) What is the name of process B?

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

(c) Sometimes it is so cold that the water in a lake becomes ice.

What is the name of this process?

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

(d) Sea water is boiled in a beaker for a long time.

What would you see?

.................................................................................................................................................. [1]
10 There are five objects below.

They are either **transparent** or **opaque**.

Write down the objects into the correct box.

- **window**
- **tin can**
- **spectacles**
- **microscope slide**
- **car tyre**

<table>
<thead>
<tr>
<th>transparent</th>
<th>opaque</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11 Rachel and Imre are adding two different solids to two different liquids.

Here are their results.

<table>
<thead>
<tr>
<th></th>
<th>chalk</th>
<th>sugar</th>
</tr>
</thead>
<tbody>
<tr>
<td>vinegar</td>
<td>fizzing</td>
<td>nothing happens</td>
</tr>
<tr>
<td>water</td>
<td>sinks to bottom</td>
<td>dissolves</td>
</tr>
</tbody>
</table>

(a) Which solid changes irreversibly in **vinegar**?

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

(b) Which solid changes reversibly in **water**?

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

(c) Which solid and liquid makes a new substance?

Tick (✓) the correct box.

- vinegar and chalk
- water and chalk
- water and sugar

[1]
12 Mia is aged 7 years.

She wants to measure her hand.

She makes a print of her hand.

She makes a hand print every month for 12 months.

(a) Mia wants to measure how much her hand changes.

What does she measure on the hand print? [1]

(b) Why is it important to make the same measurement each month? [1]

(c) Write down one way Mia makes the measurements more reliable? [1]

(d) Predict what will happen to Mia's hand size after 12 months.

Circle the correct answer.

stays the same decreases increases [1]

(e) What is the name of the hard part inside the hand?

Circle the correct answer.

blood  bone  muscle  skin [1]
13 Alina and Troy investigate the strength of magnets.

Here are their results.

(a) Which is the strongest magnet?

Circle the correct answer.

A  B  C

(b) What two factors must they keep the same to make it a fair test?

1 .................................................................................................................................

2 .................................................................................................................................
(c) Complete the table to show what objects are attracted to a magnet.

Tick (√) the two correct boxes.

<table>
<thead>
<tr>
<th>object</th>
<th>attracted to magnet</th>
</tr>
</thead>
<tbody>
<tr>
<td>steel scissors</td>
<td></td>
</tr>
<tr>
<td>plastic cup</td>
<td></td>
</tr>
<tr>
<td>gold ring</td>
<td></td>
</tr>
<tr>
<td>copper bracelet</td>
<td></td>
</tr>
<tr>
<td>iron horseshoe</td>
<td></td>
</tr>
</tbody>
</table>

14 Two scientists called Colladon and Sturm did an experiment on Lake Geneva in 1826.

Colladon

Sturm

This is what they did:

- Colladon struck a bell underwater.
- When the bell was struck he set off a flash of light.
- Sturm was nine miles away. He listened for the bell underwater.
- Sturm recorded the time between seeing the flash and hearing the bell.

This experiment was conducted at night.
(a) What were they trying to find out?

Tick (√) the correct box.

- The speed of the water.
- The speed of sound in air.
- The speed of sound in water.
- The speed of light in water.

[1]

(b) Light travels much faster than sound.

Tick (√) the box next to the correct conclusion.

- He hears the bell before he sees the flash of light.
- He sees the flash of light before he hears the bell.
- He hears the bell at the same time as he sees the flash of light.

[1]

(c) Why was the experiment carried out at night?

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

(d) Why do they repeat their experiment three times?

................................................................................................................................................ [1]
Noa and Tamar investigate friction.

They pull a block using a forcemeter.

(a) Draw an arrow on the diagram to show the direction of frictional force.

(b) What is force measured in?

Circle the correct answer.

\[ \text{cm}^3 \quad \text{Kg} \quad \text{m}^2 \quad \text{N} \]

Noa and Tamar repeat the investigation using different surfaces.

Here are their results.

<table>
<thead>
<tr>
<th>surface</th>
<th>force needed</th>
</tr>
</thead>
<tbody>
<tr>
<td>table top</td>
<td>3.0</td>
</tr>
<tr>
<td>paper towel</td>
<td>3.3</td>
</tr>
<tr>
<td>fine sand paper</td>
<td>3.4</td>
</tr>
<tr>
<td>rough sand paper</td>
<td>3.7</td>
</tr>
</tbody>
</table>

(c) Complete the sentence to write a conclusion for this investigation.

The rougher the surface, the \__________________________\ the force needed.
(d) Predict what will happen if oil is added to the surface of the table top.

Tick (√) one box.

the force needed will be about 2.6

the force needed will be about 3.0

the force needed will be about 3.1

the force needed will be about 3.6

16 Rowan and Lark investigate how the number of stirs affects the time it takes for sugar to dissolve in water.

Here are their results.

<table>
<thead>
<tr>
<th>number of stirs</th>
<th>5</th>
<th>10</th>
<th>15</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>time it takes to dissolve in seconds</td>
<td>49</td>
<td>41</td>
<td>27</td>
<td>15</td>
</tr>
</tbody>
</table>

(a) Write down two things they must do to make their investigation a fair test.

1. ........................................................................................................

2. ........................................................................................................ [1]

(b) Write down one other factor they could change which affects how quickly the same mass of sugar dissolves in water.

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