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.

For Examiner's Use

<p>| | |</p>
<table>
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This document consists of 15 printed pages and 1 blank page.
The place where an animal lives is called its habitat.

Draw a line to connect each animal in the list to the habitat in which it lives.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camel</td>
<td>Arctic</td>
</tr>
<tr>
<td>Polar bear</td>
<td>Desert</td>
</tr>
<tr>
<td>Tree frog</td>
<td>Ocean</td>
</tr>
<tr>
<td>Whale</td>
<td>Rainforest</td>
</tr>
</tbody>
</table>
2 (a) Shirts can be made from synthetic or naturally occurring materials.

Which shirt is made from a naturally occurring material?
Tick (✓) the correct box.

- rayon
- nylon
- polyester
- cotton

(b) The table shows some materials found in Mr. Patel's house.
Tick (✓) the materials which came from living things.

<table>
<thead>
<tr>
<th>Materials</th>
<th>Made from living things</th>
</tr>
</thead>
<tbody>
<tr>
<td>gold</td>
<td></td>
</tr>
<tr>
<td>wood</td>
<td></td>
</tr>
<tr>
<td>diamonds</td>
<td></td>
</tr>
<tr>
<td>silk</td>
<td></td>
</tr>
<tr>
<td>wool</td>
<td></td>
</tr>
<tr>
<td>slate</td>
<td></td>
</tr>
</tbody>
</table>

[1] [2]
3 (a) Freda is investigating light. She makes a periscope from card and two mirrors.

(i) On the diagram, show how Freda needs to position the mirrors so that the periscope will work. [1]

(ii) Freda can see the flower using her periscope. Use a ruler to draw a ray of light on the diagram to show how she sees the flower. (Remember to draw the arrowheads to show the direction of the light.) [2]

(b) (i) Glass in a bathroom window lets light through but we cannot see through it. What is the name that we give to materials that behave in this way? [1]

(ii) Glass in a normal window lets light through and we can see through it. What is the name that we give to materials that behave in this way? [1]
4  (a) All living things have seven life processes. Fill in the missing two.

Nutrition
Movement

Reproduction

Sensitivity
Respiration

(b) Life processes are what we use to explain if something is living or not. Put each item in the list into the correct box in the table.

<table>
<thead>
<tr>
<th>car</th>
<th>dog</th>
<th>fallen branch</th>
<th>glass</th>
<th>seaweed</th>
<th>tree</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Living</th>
<th>Non-living</th>
</tr>
</thead>
</table>

[2] [3]
5  (a) An electrical circuit has two cells, correctly arranged, and two lamps in series with one switch. When the switch is closed both of the bulbs light up.

Which circuit, A, B or C, matches the description?

Put a circle around the answer.

(b) In this circuit, bulb S does not light up.

(i) What happens to bulbs R and T?

R .........................................................................................................................
T ......................................................................................................................... [1]

(ii) Why does this happen?

......................................................................................................................... [1]
(c) In this circuit, bulb Y fails.

What happens to bulbs X and Z?

X .................................................................

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

6 Joel is trying to separate the mixtures shown using a magnet. Tick (✓) two mixtures which can be separated using the magnet.

iron and plastic  iron and steel  copper and steel  copper and paper  copper and lead

[2]
7  This is a picture of a food chain.

(a) What is the name given to the seaweed in the food chain?

(b) What other name, apart from consumer and carnivore, can be given to the seal in the food chain?

(c) In the box, construct a food chain to show the relationship between a plant, a cat, a bird and a caterpillar.
8  **(a)** The water from conical flask 1 was poured into the test tube.

(i) Which line represents the water level in the test tube? Tick (✓) the correct box.

The water was then poured from the test tube into conical flask 2.

(ii) Draw the approximate water level in conical flask 2.

(b) James poured 750 cm\(^3\) of orange juice into the flask. Draw a line to show the surface of the juice.
9 **(a)** Anita plays the violin with a bow.

(i) How would she make the volume quieter?

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

(ii) What **two** things could she do to play a note with a higher pitch?

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

**(b)** Here are four statements about how a violin makes a note and the sound reaches our ear.

Put numbers in the boxes next to each statement to show their correct order.

The body of the violin makes the sound louder.  

The sound carries vibrating air particles until they reach our ears.  

The vibrations enter the body of the violin.  

The violin string vibrates.  

[1]
10 Sam and Emily are experimenting to find the best material for building bridges. They measure the strength of the materials by hanging weights in a bag from each material as shown in the diagram.

Their results are shown in the table:

<table>
<thead>
<tr>
<th>Material</th>
<th>Mass supported (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>cardboard</td>
<td>25</td>
</tr>
<tr>
<td>metal</td>
<td>150</td>
</tr>
<tr>
<td>plastic</td>
<td>95</td>
</tr>
<tr>
<td>thin card</td>
<td>5</td>
</tr>
<tr>
<td>wood</td>
<td>65</td>
</tr>
</tbody>
</table>

(a) Before they started the tests, Emily said that metal would be the strongest.

What is this statement called? ................................................................. [1]

(b) (i) Name two things they could do to make their tests fair.

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

(ii) How could they make their results more reliable?

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

(c) From their results, which is the third best material for making a bridge?

...................................................................................................................... [1]
11 When a solid dissolves in water you cannot filter out the solid.

Aravinder makes a sugar solution by adding sugar to water.

(a) Complete the sentences using either the word **solute** or **solvent** in each of the spaces.

Aravinder leaves the solution he made for a long time in a warm room, the  evaporates. When all the  has gone, only the  is left. [2]

(b) What is the name of the process used to get the solid back from the solution?

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

(c) What happens to the concentration of the sugar solution as the water is removed?

............................................................................................................. [1]
12 (a) The diagram shows a section through a coconut fruit.

Which part of the fruit stores the food that is used for germination?  

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

(b) A seed is produced when the male and female sex cells join. What is this process called?  

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

(c) The drawings show four fruits.

<table>
<thead>
<tr>
<th>dandelion</th>
<th>maple</th>
<th>hazelnut</th>
<th>burdock</th>
</tr>
</thead>
</table>

Which two of these plants rely on animals to disperse their fruits?  

........................................................................................................................................... and ........................................................................................................................................... [2]
13 Leroy has a beaker containing salt and sand. He wants to separate the salt from the sand.

He has a list of what to do but it is muddled up. Write the numbers in the correct order to do the separation. One has been done for you.

- evaporate off the water [5]
- stir to dissolve the salt
- pour salt water into an evaporating basin
- filter off the sand
- add water [1]

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14 Changes can be either reversible or irreversible.

(a) Draw straight lines from each of the changes to show if they are reversible or irreversible.

- condensing water: reversible
- nail rusting: irreversible
- breaking an egg: irreversible
- evaporating water: irreversible

(b) Which one of the above irreversible reactions is not a chemical change?

- [ ] condensing water
- [ ] nail rusting
- [ ] breaking an egg
- [ ] evaporating water

[1] [2]