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.
1. Complete the sentences about food chains.

Choose from the following words:

- consumer
- predator
- prey
- producer

A food chain starts with a consumer.

Any animal eaten by another animal is their prey.

An animal that eats something else in the food chain is a consumer.

An animal that eats another animal is a predator.

2. This bar chart shows the boiling points of some substances.

(a) What is the boiling point of substance A?

(b) Which substance has the lowest boiling point?
(c) What happens to a liquid when it boils? 

(d) Water is not shown on the bar chart. What is the boiling point for water?

3 Oliver measures how loud some sounds are.

(a) Circle the apparatus he uses.

(b) Oliver picks up a guitar. What must he do to the guitar to produce a sound?
(c) There is a group of children playing violins. The teacher wants them to produce a louder sound.

What two things would make this happen?

Tick (✓) the two correct sentences.

- Play the violins harder.  
- Play the violins softer.  
- Have more violins playing.  
- Have less violins playing.

[1]
4 Keys can be used to identify plants.

Here is the key for some plants.

Does it have berries?

yes no

(It is a Cowberry) Does it have spiky petals?

yes no

(It is an Alpine Aster) Does it have bell-shaped flowers?

yes no

(It is a Fairy Thimble Bellflower) Does it have four petals on each flower?

yes no

(It is a Common Mezereon) (It is a Pinnate-leaved Ragwort)

Use the key to identify the plants.

A = _________________________________________________________________
B = _________________________________________________________________
C = _________________________________________________________________
D = _________________________________________________________________
E = _________________________________________________________________ [3]
Chen wants to separate a mixture of salt, sand and iron powders.

(a) First of all Chen decides to separate the iron from the mixture.

Put a circle around the method he uses.

- evaporation
- filtration
- magnetic attraction
- sieving

(b) Chen then decides to separate the sand from the salt and sand.

He adds water to the mixture and then stirs the mixture for two minutes.

Put a circle around the method he then uses to obtain the sand.

- evaporation
- filtration
- magnetic attraction
- sieving

(c) To finish the separation Chen gets salt from the salt solution.

Put a circle around the method he uses to obtain the salt.

- evaporation
- filtration
- magnetic attraction
- sieving

[1]
6 Pierre and Yuri investigate how exercise changes pulse rate.

(a) What equipment will they need to measure pulse rate?
Circle the correct equipment.

(b) Which unit is a correct measurement of pulse rate?
Circle the correct answer.

beats per minute
beats per second
minutes per beat
seconds per beat
(c) Pierre runs for 1 minute.

Complete the sentence using one of these words.

decrease  increase  stay the same

Pierre thinks his pulse rate will ..........................................................  [1]

(d) What is the sentence above?

Circle the correct answer.

conclusion  method  prediction  result  [1]

(e) Pierre runs for 1 minute again.

Why is it a good idea to repeat measurements?

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

............................................................................................................  [1]
7 The flow chart shows part of the water cycle.

(a) What is the name of process A? 

(b) What is the name of process B? 

(c) Sometimes it is so cold that the water in a lake becomes ice. 
What is the name of this process? 

(d) Sea water is boiled in a beaker for a long time. 
What would you see?
8 Lily wants to measure her mass.

She stands on the scales.

Tick (✓) the correct answer.

Lily’s mass is **greatest** when her hands are up. [ ]

Lily’s mass is **less** when her hands are up. [ ]

Lily’s mass is the **same** when her hands are up or down. [ ]

[1]
9 Flowers have different parts.

(a) Why do flowers have petals?

(b) Circle the part of the flower which produces pollen.

(c) Circle a female part of the flower.
10 Rajiv finds an electric circuit diagram in a book.

(a) Label the circuit diagram. [3]

Rajiv builds this circuit.

(b) It does not work. Explain why. [1]

(c) Rajiv now builds this circuit.

It does not work. Explain why. [1]
Oliver and Carlos investigate sound.

They listen to the pitch made by different recorders.

(a) The recorders are different lengths.

What apparatus is used to measure the length of the recorders?

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

(b) Recorder B has the lowest pitch.

Predict which recorder will have the highest pitch.

Circle the correct letter.

A C D E ........................................................................................................... [1]

(c) Explain why you predicted this recorder.

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

.................................................................................................................. [1]
12 Using the picture below list **three** features which help this animal to adapt to its environment.

1. .................................................................
2. .................................................................
3. .................................................................

13 Scientists explore the solar system.

Which scientist was one of the **first** to believe that the Sun was at the centre of our solar system?

Tick (✔) the correct scientist.

Edwin Hubble

Galileo Galilei

Isaac Newton

Leonardo da Vinci

[1]
14 Hassan lives by the sea.

He wants to find out how much salt is in seawater.

He measures a small volume of seawater using this apparatus.

(a) What is the name of apparatus X?

(b) What is the volume of seawater in apparatus X?

(c) Hassan then finds the mass of a clean glass dish.

What piece of apparatus should Hassan use to do this?

Circle the correct answer.

balance  beaker  ruler  thermometer
(d) Hassan pours all of the seawater into the glass dish.

He leaves the dish of seawater in the sun for one day.

What happens to the volume of seawater in the dish?

Circle the correct answer.

- decreases
- increases
- stays the same

[1]
15 Priya and Mia make a sundial.

(a) The time is 14:00.

Describe how the sundial shows this time.

(b) Why does the shadow change during the day?

Circle the correct answer.

- the Sun moves during the day
- the Earth spins on its axis during the day
- the Sun spins on its axis during the day

(c) Priya wants to make a sundial to show the time over 24 hours.

Mia says this is not possible.

Explain why Mia is correct.
16 Aiko investigates how much of a solid dissolves in 100 cm$^3$ of water.

She writes down her results.

Here is a page from her note book.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Solids Disolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>60°C</td>
<td>120g</td>
</tr>
<tr>
<td>30°C</td>
<td>45g</td>
</tr>
<tr>
<td>20°C</td>
<td>30g</td>
</tr>
<tr>
<td>40°C</td>
<td>65g</td>
</tr>
<tr>
<td>50°C</td>
<td>90g</td>
</tr>
</tbody>
</table>

Why is it a good idea for Aiko to put her results in a table? 

--------------------------------------------------------------------------------------------------------------------------------- [1]