1. **In a science laboratory we need to measure many things.**
   a) Complete the following table. You are asked to fill in the empty spaces according to the information already given.

<table>
<thead>
<tr>
<th>Drawing of instrument</th>
<th>Name of Instrument</th>
<th>Units used</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>thermometer</td>
<td>cm</td>
</tr>
</tbody>
</table>

   b) What volume does this measuring cylinder show?

   ___________________________

   (1)
2. During a fieldwork exercise, two groups of students counted the number of different flowers in a separate area. Here are their results:

**Group 1** counted 4 daisies, 6 buttercups, 5 red pimpernels, 2 borages.

**Group 2** found 3 red pimpernels, 1 buttercup, 2 daisies and 3 dandelions.

a) i. In the table below write the total number of each flower that was found in that area.

<table>
<thead>
<tr>
<th>Name of flower</th>
<th>Colour</th>
<th>Total number found</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daisy</td>
<td>White</td>
<td></td>
</tr>
<tr>
<td>Buttercup</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>red pimpernel</td>
<td>Red</td>
<td></td>
</tr>
<tr>
<td>Borage</td>
<td>Blue</td>
<td></td>
</tr>
<tr>
<td>Dandelion</td>
<td>Yellow</td>
<td></td>
</tr>
</tbody>
</table>

ii. On the grid provided draw a bar chart to show the number of each flower found. Mark the axes.

b) How many flowers were found in all? ________________
3. The following question is about a simple experiment done in a laboratory during a science lesson. Read the paragraph and then answer the following questions.

Mark wanted to separate a mixture of sand and water. He folded a filter paper and placed it in a funnel. He placed the funnel in a conical flask. Mark started pouring the mixture from the beaker on to the filter paper. The sand remained on the filter paper and clear water passed down into the conical flask.

a) Give a name to this experiment: ______________________________            (1)

b) Draw a diagram of the apparatus set up for this experiment. Label the diagram.  

4. The diagram shows a human sperm cell.

![Sperm Cell Diagram]

a) Add the labels from the box to the diagram

| Nucleus | cytoplasm | cell membrane |

(3)

b) Give one feature of this cell which is not usually found in animal cells.

_______________________________________________________________            (1)

c) What name is given to the process that happens when a sperm cell joins with an egg cell?

_______________________________________________________________            (1)
5. The diagram below shows the structure of a flower.

b) Fill in the blanks. The following words might help you. Each word can be used once, more than once or not at all.

ovary anther stigma style filament petal wind animals

Pollen is made in the __________. This pollen can be spread to other flowers by ___________ and ___________. When the pollen lands on the flower it can stick to the ___________. A pollen tube then grows down the style into the ____________________.

(5)

6. The diagram shows a foetus inside its mother’s womb.

a) Name the parts X and Y

<table>
<thead>
<tr>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
</tr>
</tbody>
</table>

(2)

b) Name TWO things that would travel to the baby from the mother through X and Y.

_____________________________________
_____________________________________

(2)
7. **When drawing electrical circuits we use symbols.**
   a. What do these symbols stand for?

   ![Symbols](image)

   _______  _______  _______  (3)

   b. Look at these circuits and then answer the following questions

   ![Circuits](image)

   (i) Which circuit would NOT allow the bulbs to light? _______________  (1)

   Explain why you have selected this circuit.

   _________________________________________________________________  (1)

   (ii) Which TWO circuits have the bulbs in parallel? _____________________  (2)

   (iii) **Look at circuit A.**

   Fill in the table below to show what will happen when the following changes are made to the circuit.

<table>
<thead>
<tr>
<th>Changes to circuit A</th>
<th>What happens?</th>
</tr>
</thead>
<tbody>
<tr>
<td>One lamp is unscrewed</td>
<td></td>
</tr>
<tr>
<td>Another cell is added in series</td>
<td></td>
</tr>
</tbody>
</table>
c. A set of Christmas lights did not light up. This was because one of the bulbs was broken. Were these bulbs connected in series or in parallel?

______________________________________________________________

(1)
d. There is a gap in the following circuit.

![Circuit Diagram]

The following objects were tested to find out whether they are conductors or insulators. Underline the conductors ONLY.

coin, wood, feather, nail, rubber, aluminium foil

(3)

8. Helen is doing an experiment. She puts some ice cubes in a pan and heats them up. Some time later she notices drops of water on a window.

**Fill in the blanks to explain what is happening.**
The following words might help you. Each word can be used once, more than once or not at all.

<table>
<thead>
<tr>
<th>liquid, freezing, solid, condensation, evaporation, 100, 0, boiling, gas</th>
</tr>
</thead>
</table>

Before she starts to heat the ice cubes up, the ice is a _____________. After the ice has been heated, it turns to water which is a _______________. On further heating, Helen notices bubbles of ________________ rising within the water. Water is now ____________ and its temperature is __________ degrees Celsius (°C). ________________ of water from the saucepan produces water vapour which then cools on the window. This cooling of water vapour is called _________________. This produces small water drops which are seen on the window.

(7)
9. The diagram below shows how animals are divided.

a). Find out what each letter can stand for and write them in the table provided.

<table>
<thead>
<tr>
<th>Animals</th>
<th>Letter</th>
<th>What it can stand for</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>Invertebrates</td>
</tr>
<tr>
<td>B</td>
<td>Birds</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Fish</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b). A scientist has found an animal and she wishes to find to which group it belongs.

What is the first thing that the scientist must look for to decide which of the two main groups it belongs to?
10. Use the pictures to answer the following questions:

a) List 2 vertebrates _____________________ ____________________ (2)
b) List 2 invertebrates _____________________ ____________________ (2)
c) Name a mammal. Write ONE feature which makes it a mammal.
   __________________________________________________________________ (2)
d) Name an amphibian. Write ONE feature which makes it an amphibian.
   __________________________________________________________________ (2)

11. This question is about energy sources.

a) Underline the renewable energy sources from the following list.
   
   coal biomass wind oil waves natural gas (3)

b) Each of the energy resources listed above can have its energy traced back to ONE source. What is this ‘one source’?
   
   __________________________________________________________________ (1)
c) A businessman has 3 homes in different places. He would like to use renewable energy sources like **solar panels** and **wind turbines**.

Which of these two sources is best to be used in:

i. a house in a valley between two mountains: ________________

ii. a house on top of a hill: ________________

iii. a house in the north of Europe during summer ________________

12. In most kitchens there are lots of devices that are designed to transfer electrical energy into at least one type of energy. Complete the following, showing only the **MAIN** energy transfer:

<table>
<thead>
<tr>
<th>Device</th>
<th>Energy Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. electric kettle</td>
<td>Electricity → ________________</td>
</tr>
<tr>
<td>b. food processor</td>
<td>Electricity → ________________</td>
</tr>
<tr>
<td>c. radio</td>
<td>Electricity → ________________</td>
</tr>
</tbody>
</table>

13. This question is about some elements and compounds.

a. Give the names of the elements that have the following symbols.

   C ________________ Cu ________________

   Mg ________________

b. Circle **the compounds** in the following list of substances.

   silver hydrogen sulfur carbon dioxide salt
14. In the diagrams below:

- stands for a zinc atom
- stands for a sulfur atom

A                              B                              C                               D

i) Which diagram represents pure sulfur?  ____________

ii) Which diagram represents a mixture of zinc and sulfur?  ____________

iii) Which diagram represents a compound of zinc and sulfur? ____________

iv) Write one difference between an element and a compound.

________________________________________________________________________

15. Elements can be divided into metals and non-metals.

a) i. Name one metal used in the lab.  ________________

ii. Name one non-metal.  ________________

(2)

b) i. Name one metal used to make jewellery. ________________

ii. Give one property of this metal that makes it suitable for jewellery.

________________________________________________________________________

(1)

- END OF PAPER. PLEASE CHECK YOUR WORK AGAIN -