1. The following is a list of laboratory apparatus. Choose any THREE. In the space provided draw this apparatus and write its name.

chemical bottle, pipette, test-tube, measuring cylinder, tripod, thermometer

2. This question is about measuring instruments.
   a) What is the measurement shown by the arrow on the ruler? Your answer should include the correct unit.
      ________________  (1)

   b) Using an arrow, mark on the ruler a measurement of 6.7cm.
      (1)
c) Which instrument is used to measure:

- volume of a liquid: _____________________________________
- temperature: _____________________________________
- time: _____________________________________ (3)

d) Every measurement has its own unit. Match these measurements to their units.

<table>
<thead>
<tr>
<th>MEASUREMENT</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>volume</td>
<td>s</td>
</tr>
<tr>
<td>time</td>
<td>g</td>
</tr>
<tr>
<td>length</td>
<td>ml</td>
</tr>
<tr>
<td>mass</td>
<td>cm</td>
</tr>
</tbody>
</table>

(4)

3. The diagram shows a sperm cell.

![Image of sperm cell]

a) Add these labels from the box to the diagram.

| Nucleus | Cytoplasm | cell membrane |

(3)

b) Which part of this cell is not usually found in animal cells?

______________________________________________ (1)

c) Underline the correct word from each bracket.

When an egg cell joins with a sperm cell (filtration / fertilisation) takes place. The (nucleus / cell membrane) of each cell join together to form a new cell. This is the beginning of a new (animal / plant).
4. The diagram below shows three parts of a flower. These are the ANther, the Ovary and the Stigma.

![Diagram of flower parts]

a) Write the correct letter in the following sentences:
   i) Part ______ is the **ovary**.
   ii) Part ______ is the **anther**.
   iii) Part ______ is the **stigma**.

b) Answer TRUE or FALSE.
   i. Pollen is made in the anther. ________
   ii. The pollen contains the female sex cell of the flower. ________
   iii. Wind and animals spread this pollen to other flowers. ________
   iv. The ovary makes the male sex cells. ________
   v. In the stigma the male and female sex cells join together. ________

5. The diagram shows a baby before birth.

   Use these words to label the diagram.

   **uterus, umbilical cord, foetus, placenta**

![Diagram of baby in womb]
6. Symbols are used when drawing circuit diagrams.
   a. What do these symbols stand for?

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

   (i) Which circuits will make the bulbs light? _______________

   (ii) Which circuit is incomplete? _______________

   What is missing in this circuit? ___________________________

   On the diagram of this circuit, use the correct symbol to fill in the missing part. (3)

   c. i). In which circuits are the bulbs connected in series? ___________

   ii) In which circuits are the bulbs connected in parallel? ___________

   d. 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)
7. The following question is about two different methods of separation.

a. **Diagram A shows chromatography.**
   
   i) Name THREE things you see in the diagram.
   
   ______________________________________________________
   ______________________________________________________
   ______________________________________________________ (3)

   ii) **Underline the correct answer:**
       
       This experiment is used to …
       - filter water
       - separate colours
       - evaporate water (1)

b. **Diagram B shows another method of separation.**

   i) Label the diagram:

   ______________________________________________________
   ______________________________________________________ (3)

   ii) What is the name of this method of separation?

   ______________________________________________________ (1)

   iii) **Underline the correct answer:**
       
       This method can be used to separate:
       - sand and water
       - salt and water
       - soil and salt
       - soil and sand (1)
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</th>
<th>freezing</th>
<th>solid</th>
<th>condensation</th>
<th>evaporation</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>0</td>
<td>boiling</td>
<td>gas</td>
<td></td>
</tr>
</tbody>
</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.**

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

```
Animals
   A
   
   B e.g. whale
   Birds E
   Fish F
   C e.g. frog
   D e.g. snake
```

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

(6)
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. What is the MAIN form of ENERGY found in each of these pictures?

a. ____________________  
b. ____________________
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></th>
<th>Description</th>
<th>Energy Transfer</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>electric kettle</td>
<td>Electricity →</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>food processor</td>
<td>Electricity →</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>radio</td>
<td>Electricity →</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. This question is about some elements and compounds.

a. Symbols can be used to show elements. Give the symbol of the following elements.

Carbon _____________ Copper _____________ Hydrogen _____________ (3)

b. Compounds are chemicals made up of a number of elements joined together. For example, water is made up of hydrogen and oxygen.

Which TWO elements make up:

i) Carbon dioxide? _____________ and _____________ (2)

ii) Salt? _____________ and _____________ (2)

14. In the diagrams below:

- stands for a Hydrogen particle - stands for an Oxygen particle

i) Which diagram shows pure hydrogen? ___________ (1)

ii) Which diagram shows a compound of hydrogen and oxygen? ___________ (1)

iii) Which diagram represents pure oxygen? ___________ (1)

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

a) i. Name one metal used in the lab. _____________ (2)

ii. Name one non-metal. _____________ (2)

b) i. Name one metal used to make jewellery. _____________ (1)

ii. Give one property of this metal that makes it suitable for jewellery. _____________ (1)

- END OF PAPER. PLEASE CHECK YOUR WORK AGAIN -