1. This chemical bottle shows two hazard symbols.
   a) Choose words from the box to give the meaning of each hazard symbol.

   poisonous  corrosive  irritant  flammable

   (2 marks)

   b) Write down TWO laboratory safety rules.

   i. ____________________________________________________________

   ii. __________________________________________________________

   (2 marks)
2. In the science laboratory, the lab technician prepared the following apparatus.

![Image of laboratory apparatus]

a) Circle the apparatus used to magnify small living things. (1 mark)

b) Name the apparatus labelled
   A: __________________________   B: __________________________ (2 marks)

c) Martha poured 50 cm$^3$ of water in a measuring cylinder. She then put a steel ball in the measuring cylinder.
   i. What is the new reading of the measuring cylinder? __________ (1 mark)

   ii. What is the volume of the steel ball? _______________________ (1 mark)

![Water and steel ball diagrams]

d) Lara needs to heat 65 cm$^3$ of water to 80 °C. List THREE of the apparatus which Lara needs.

________________________   __________________________   __________________________ (3 marks)
3. The picture below shows five different animals.

   a) Which group of vertebrates does a shark belong to? _______________ (1 mark)
   b) Which of the animals above is covered with feathers? _______________ (1 mark)
   c) Which animal in the picture above is an invertebrate? _______________ (1 mark)
   d) Both the bat and the whale are mammals. Name TWO characteristics common to both animals.
      i. ___________________________________________________________________
      ii. __________________________________________________________________ (2 marks)

4. Charlie observed a hedgehog in his farm.

   a) This food chain shows the relationship between these living things. Complete.

      [Diagram: Leaves → Worm → Hedgehog] (2 marks)

   b) If all the worms died, what would happen to the hedgehogs?

      _____________________________________________________________________
      _____________________________________________________________________ (2 marks)

   c) Name an organism in the food chain which is

      i. a producer: _____________  ii. a consumer: _____________ (2 marks)
d) Both plants and hedgehogs are living things.
   Tick (✓) TWO things which both plants and hedgehogs can do.

   - They eat food
   - They grow
   - They move from place to place
   - They reproduce

   (2 marks)

5. Each of the following animals is adapted to live in its habitat.
   Complete the table below about animal characteristics and their function.

   - **Arctic hare**
   - **Elephant**
   - **Eagle**
   - **Frog**

<table>
<thead>
<tr>
<th>Animal</th>
<th>Characteristic</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frog</td>
<td>Long sticky tongue</td>
<td></td>
</tr>
<tr>
<td>Arctic hare</td>
<td></td>
<td>To keep warm</td>
</tr>
<tr>
<td>Elephant</td>
<td>Flaps its large ears</td>
<td></td>
</tr>
<tr>
<td>Eagle</td>
<td></td>
<td>To grasp the prey and tear flesh</td>
</tr>
</tbody>
</table>

   (4 marks)

6. Scientists found a new living thing in the Mexican desert. They studied its cells under the microscope.

   a) Underline the correct word: The new living thing is (an animal, a plant). (1 mark)

   b) Give ONE reason for your answer in (a).

   __________________________________________________________ (1 mark)
c) Match each cell structure with its correct function. The first one has been done for you.

<table>
<thead>
<tr>
<th></th>
<th>Cell Structure</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cytoplasm</td>
<td>Protects the cell</td>
</tr>
<tr>
<td>2</td>
<td>Cell wall</td>
<td>Stores water and sugars</td>
</tr>
<tr>
<td>3</td>
<td>Chloroplast</td>
<td>Allows chemical reactions to take place 1</td>
</tr>
<tr>
<td>4</td>
<td>Vacuole</td>
<td>Contains green chemical to trap sunlight</td>
</tr>
</tbody>
</table>

(3 marks)

d) The diagram shows a sperm cell. It is found in male animals.

i. Which part of the cell helps it to reach the egg? ____________________ (1 mark)

ii. In which part of the male’s body are sperms formed? _______________ (1 mark)

iii. Which part of the sperm controls the cell and carries genetic information?
_________________________ ___________________________________________ (1 mark)

7. The diagram below shows some of the organs in the human body. Answer the following questions.

a) Which letter represents the brain?
_________________________ (1 mark)

b) What is the function of organ F?
_________________________ 
_________________________ 
(1 mark)

c) Organs D and E form part of the ____________________ system. (1 mark)
d) Last March, the doctor told Joanne that she was pregnant. Her pregnancy is expected to last 9 months.

i. Mention TWO bad habits which may harm the unborn baby.

________________________________________________________________________
________________________________________________________________________

(2 marks)

ii. The diagram below shows the female reproductive system.

Name the part of the reproductive system where

- Fertilisation takes place ______________________
- The baby grows ______________________

(2 marks)

8. This question is about energy.

a) Underline TWO forms of energy in the list.

   battery  radio  light  sun  heat

(2 marks)

b) Name the form of energy found in each picture below.

(2 marks)
c) David went into his room. He lit the gas heater and played his guitar. Write the *useful* energy change that took place in each example. (2 marks)

<table>
<thead>
<tr>
<th>Input energy</th>
<th>Example</th>
<th>Output energy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>![Guitar]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>![Gas heater]</td>
<td></td>
</tr>
</tbody>
</table>

d) Which fossil fuel is used to make the heater work? __________________ (1 mark)

9. This question is about electricity.

a) There are three hazards in the picture. They are labelled A, B and C. Choose ONE of the hazards and explain the danger shown in the picture.

Hazard: __________

Explanation:

______________________________________________________________________

_____________________________________________________________ (2 marks)
b) Jacob has two circuits on his bench. There are no problems with the batteries and the bulbs, yet the bulbs do not light up. Give a reason for each problem.

Circuit A
Reason: _____________________________________________________

Circuit B
Reason: _____________________________________________________

(2 marks)

c) Look at the following two circuits.
Identify the circuit with bulbs connected in parallel. ___________________ (1 mark)

Circuit C
Circuit D

d) In the box below, use symbols to draw circuit C. (2 marks)
10. Tom took a glass of milk and tested it with RED litmus. The litmus paper stayed RED.

a) Tom tested the same milk with blue litmus. What was the result?

____________________________________________________________________________________ (1 mark)

b) Tom used the Universal indicator to test some things found in his house. He drew his results as shown below.

![Diagram of test results]

i. Which chemical has pH 4? ________________________________ (1 mark)

ii. State the thing in Tom’s house which is:

a. Neutral ________________________________

b. The weakest alkali ______________________

c. A strong acid ________________________________ (3 marks)

c) A wasp sting is pH 10. Which substance in Tom’s house is able to neutralise this sting?

____________________________________________________________________________________ (2 marks)
11. This question is about states of matter. Study the picture below.

![Image of a kitchen scene with a woman and a man drinking wine]

a) Use the picture to name:
   i. a solid ____________________  
   ii. a gas ____________________  
   (2 marks)

b) Complete the following sentences.
   i. Jonathan poured some wine in a glass. Wine is a ________________  
      (1 mark)
   ii. Wine takes the ________________ of the glass.  
      (1 mark)
   iii. Wine can be poured because the particles ___________________________________  
        __________________________________________________.  
      (1 mark)

c) Claudia is hanging the clothes to dry.
   i. Name ONE thing that helps clothes to dry faster.
      ____________________________________________________________  
      (1 mark)
   ii. The following diagram shows the particles of water in different states. Name the
       process of this change of state.
       ____________________________________________________________  
       (2 marks)
12. This question is about physical and chemical changes.

a) Fill in the spaces below. State whether each picture is a physical or a chemical change.

<table>
<thead>
<tr>
<th>Physical Change</th>
<th>Chemical Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Image 1]</td>
<td>![Image 2]</td>
</tr>
<tr>
<td>![Image 3]</td>
<td>![Image 4]</td>
</tr>
</tbody>
</table>

(3 marks)

b) Francesco carried out an experiment in the lab. He put some magnesium in a boiling tube and added dilute hydrochloric acid. Bubbles were observed and the magnesium disappeared.

i. What shows that a chemical reaction took place?

_____________________________ (1 mark)

ii. Francesco put a lit splint in the boiling tube. This burned with a pop. What gas was given off?

_____________________________ (1 mark)

c) Tick (✓) the correct statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>True/False</th>
</tr>
</thead>
<tbody>
<tr>
<td>i. Oxygen is needed for breathing.</td>
<td></td>
</tr>
<tr>
<td>ii. Without oxygen, a fire dies out.</td>
<td></td>
</tr>
<tr>
<td>iii. Oxygen cannot be made in the lab.</td>
<td></td>
</tr>
<tr>
<td>iv. Oxygen is the only gas in the air.</td>
<td></td>
</tr>
</tbody>
</table>

(2 marks)
13. Sylvia rode her car and went shopping.

a) Fill in the box in the diagram to name the force acting on the car. (1 mark)

b) What happens to Sylvia’s car when the push and the friction forces are balanced?

______________________________ (1 mark)

c) There are different places in the car where friction is acting. For each of the following statements, whether friction is wanted or unwanted.

<table>
<thead>
<tr>
<th>Wanted or Unwanted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friction between the tyres and the road</td>
</tr>
<tr>
<td>Friction between the air and the windscreen</td>
</tr>
<tr>
<td>Friction between the moving parts of the car engine</td>
</tr>
</tbody>
</table>

(3 marks)

---------- End of paper. Please check your work again ----------