EXAMINATIONS COUNCIL OF ESWATINI
Eswatini Primary Certificate Examination

CANDIDATE NAME								
CENTRE NUMBER					CANDIDATE NUMBER			

SCIENCE **513/02**

Paper 2 **October/November 2024**

1 hour 30 minutes

Write your centre number, candidate number and name in the spaces provided.

Write in dark blue or black pen.

You may use an HB pencil for any diagrams, graphs and tables.

Do **not** use staples, paper clips, highlighter, glue or correctional fluid.

This paper consists of **two** sections:

Section A

Answer a**ll** questions.

Section B

Answer **one** question.

The number of marks is given in brackets **[ ]** at the end of each question or part question.

The total of the marks for this paper is 60.

For Examiner's Use	
Section A	
1	
2	
3	
4	
5	
Section B	
6	
7	
Total	

This document consists of **12** printed pages.

SECTION A

1 **(a)** Fig. 1.1 is a diagram of a female human reproductive system.

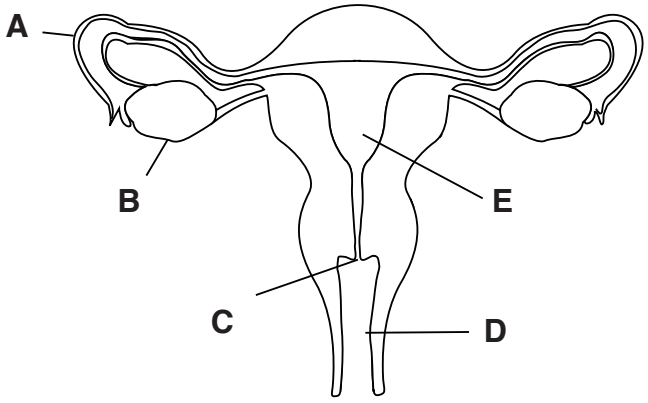

Fig. 1.1

(i) Name the parts labelled **C** and **E** in Fig. 1.1.

C.....

E..... [2]

(ii) State the letter which represents the part where fertilisation occurs in Fig. 1.1.

..... [1]

A woman noticed an unusual watery and yellow discharge from the part labelled **D** in Fig.1.1.

(iii) Name the sexually transmitted disease she is suffering from.

..... [1]

(iv) Define sexually transmitted infections.

..... [1]

(b) Plants make their food through the process of photosynthesis.

State the importance of leaves in photosynthesis.

..... [1]

(c) Animals do not make their food but depend on other organisms.

(i) Name the type of animals that feed only on plants.

..... [1]

(ii) Describe how the teeth of animals that feed on meat only are adapted to their diet.

..... [2]

(d) State the term used to describe the study of the relationship between plants and animals living in a river.

..... [1]

[Total : 10 marks]

2 **(a)** Table 2.1 shows the composition of air.

Table 2.1

	inhaled (% composition)	exhaled (% composition)
oxygen	……..	16
nitrogen	78	78
carbon dioxide	……..	4
other gases	0.9	2

(i) Name **one** element in Table 2.1.

..... [1]

(ii) Complete Table 2.1, by filling in the missing percentage composition of gases in inhaled air. [2]

(iii) Using the data in Table 2.1, state why the percentage composition of the other gases, is higher in exhaled air.

..... [1]

(b) Land pollution is a major problem faced by the world.

(i) Describe land *pollution*.

.....

..... [2]

(ii) Describe **one** way of reducing land pollution by plastic bags.

.....

..... [2]

(c) Water circulates between the earth surface, oceans and atmosphere through a process called the water cycle.

Describe how transpiration contributes to the water cycle.

.....

..... [2]

[Total : 10 marks]

3 **(a)** Fig. 3.1 shows how a mixture of salt and iron filings is separated.

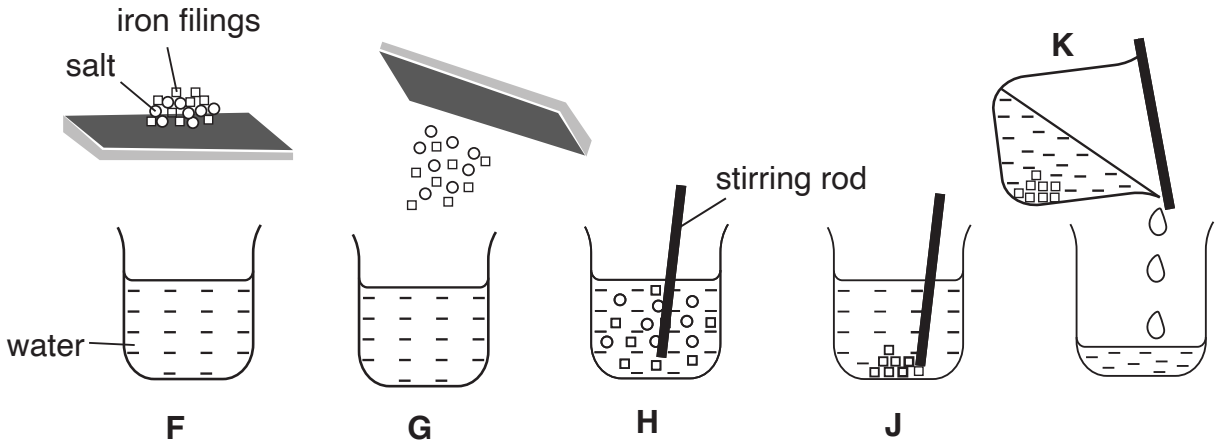

Fig. 3.1

(i) State the process that occurs in beaker **H** in Fig. 3.1.

..... [1]

(ii) State the method of separation shown in beaker **K**.

..... [1]

(iii) State a property that makes the separation method in Fig. 3.1 suitable.

..... [1]

(iv) The iron fillings obtained in beaker K are placed in a thick metal container. A special torch is then used to heat the iron fillings until they melt. Name the new state of matter for the iron filings.

..... [1]

(b) When iron is left in the open for a long time it forms a reddish brown coating called rust. This is a chemical change.

(i) State **two** reasons why the rusting of iron is a chemical change.

1.....

2.....

[2]

(ii) Vinegar may be used as a solvent to clean out rust on metals.

State a property of matter that changes after the rust is cleaned out.

..... [1]

(c) Three learners investigate if sour porridge is acidic, basic or neutral. They use universal indicator and conclude that it is acidic.

Describe how they use universal indicator to classify the sour porridge as acidic.

.....

.....

.....

..... [3]

[Total : 10 marks]

4 **(a)** Fig. 4.1 is an example of a hydro-electric power station.

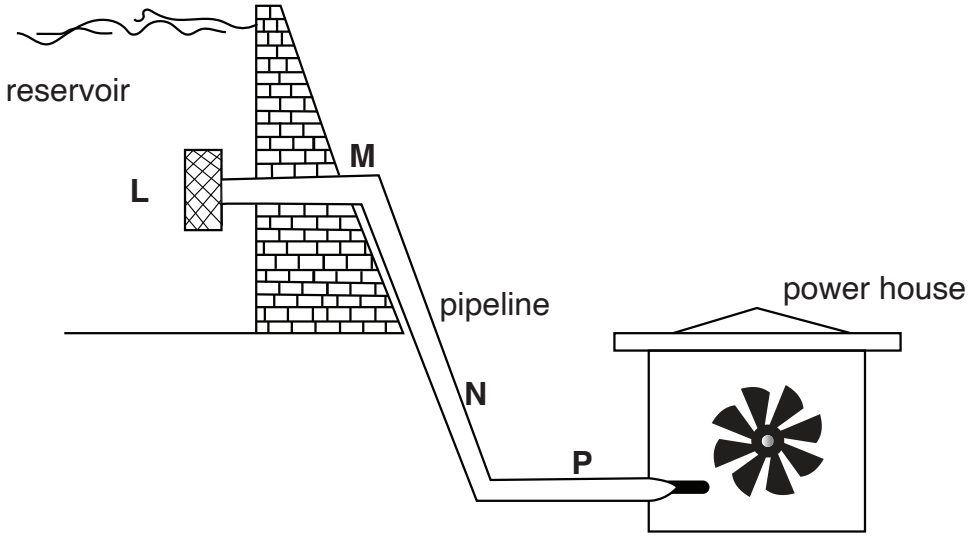

Fig. 4.1

(i) State the **two** main forms of energy possessed by the water at point **N** in Fig. 4.1.

1.....

2.....
[2]

(ii) Explain why the total energy of the water at point **P** is equal to the energy of the water at point **M**.

.....

..... [2]

(iii) State the type of electricity produced from this station.

..... [1]

(b) Fig. 4.2 shows two magnets, **Q** and **R,** and an unknown metal rod **S**.

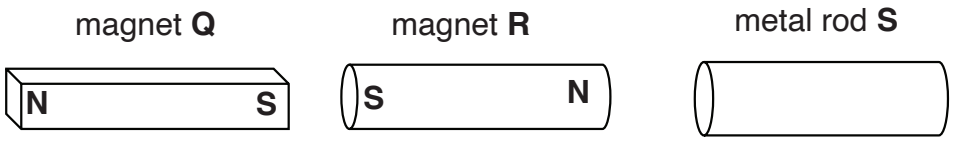

Fig. 4.2

(i) Name the types of magnets shown by **Q** and **R** in Fig. 4.2.

magnet **Q** .....

magnet **R** .....
[2]

(ii) Describe an experiment you would carry out to test if metal rod **S**, in Fig. 4.2, is a magnet.

.....

.....

..... [2]

(c) Electromagnets can be made using wires, a battery and a soft iron rod.

State **one** use of an electromagnet.

..... [1]

[Total : 10 marks]

5 **(a)** Fig. 5.1 shows a cell **T** taken from an orange tree and some soil particles.

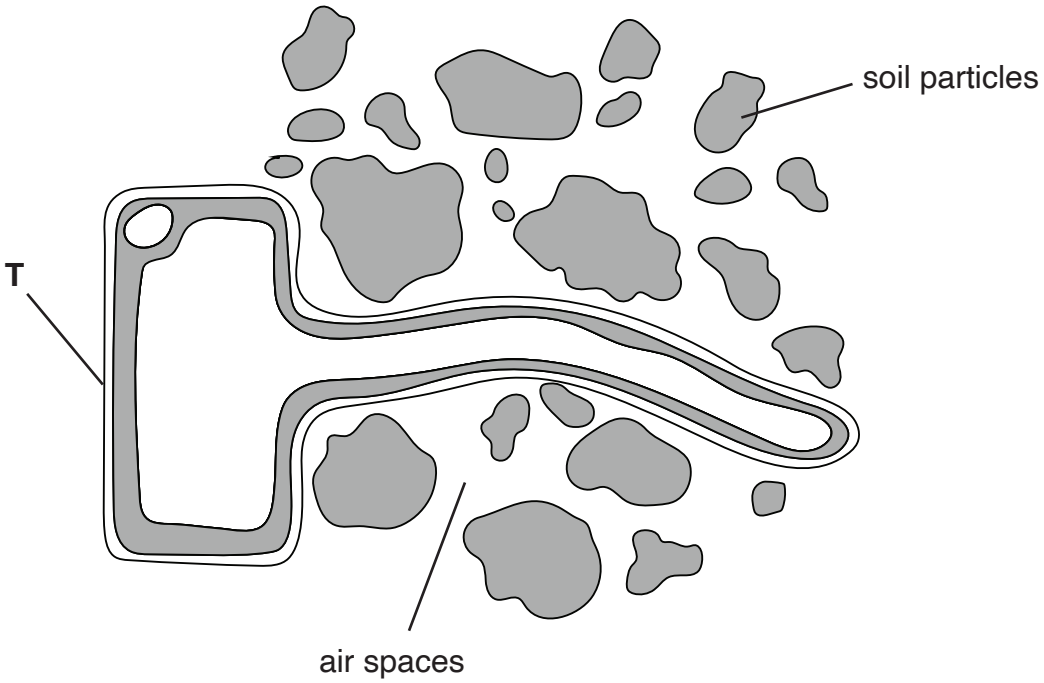

Fig. 5.1

(i) Name the type of plant cell labelled **T** in Fig. 5.1.

..... [1]

(ii) Using Fig. 5.1, state **one** feature of cell **T** that makes it to be classified as a plant cell.

..... [1]

[Turn over

(iii) The air in the soil is very important for plant growth.

Describe how the use of heavy machinery reduces the amount of air in the soil.

.....

.....

..... [2]

(b) Fig. 5.2 shows a farmer using a hoe to weed crops.

Fig. 5.2

(i) Name **one** moveable joint used by the farmer to lift up the hoe.

..... [1]

(ii) Describe the role of muscles as the farmer lifts up the hoe.

.....

.....

..... [2]

(iii) State **one** way in which the farmer can take care of the skeleton.

..... [1]

(iv) Some schools have internet access in the computer laboratory

State **one** advantage and **one** disadvantage of using internet.

advantage

.....

disadvantage

.....

[2]

[Total : 10 marks]

SECTION B

Answer only **one** question in this section

6 **(a)** Fig. 6.1 shows the steps used by a student to determine the density of a toy car.

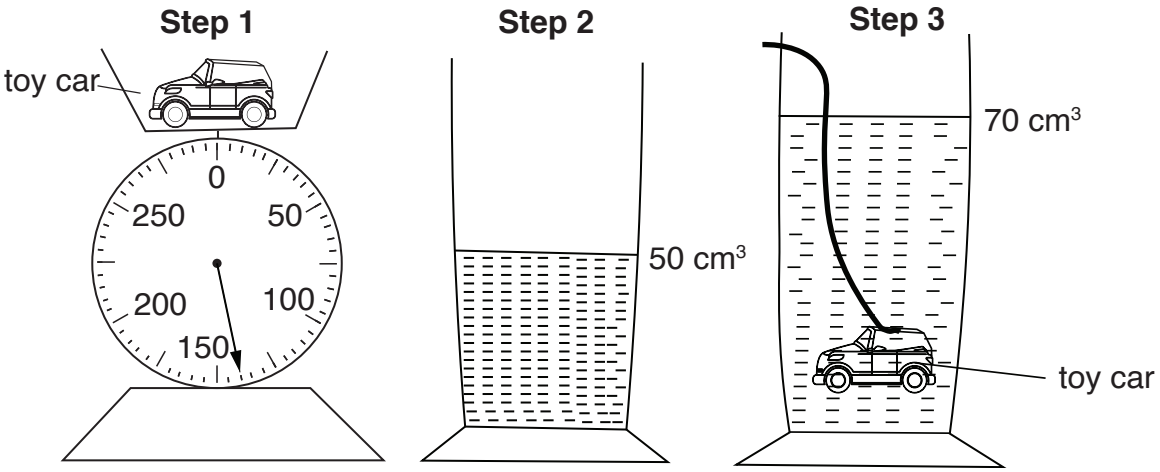

Fig. 6.1

(i) Using Fig. 6.1, find the mass of the toy car.

..... [1]

(ii) Using the information in Fig. 6.1, calculate the volume of the toy car.

volume.....unit..... [2]

(iii) Use your answers from **(i)** and **(ii)** to calculate the density of the toy car.

density.....unit..... [3]

[Turn over

(b) Fig. 6.2 shows a rectangular glass block with a base area of 35 cm^2 and a rule next to it.

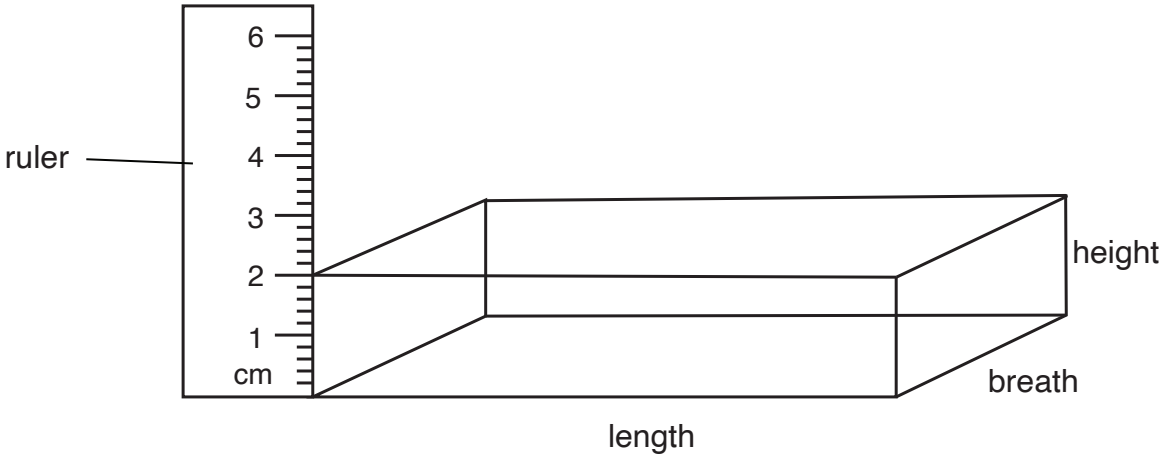

Fig. 6.2

(i) Record the height of the glass block shown in Fig. 6.2.

..... [1]

(ii) State **one** precaution that must be taken when measuring the height of the block.

..... [1]

(iii) Calculate the volume of the glass block.

volume.....unit..... [2]

[Total : 10 marks]

7 **(a)** Fig. 7.1 shows a set-up of an experiment used to investigate one of the factors affecting photosynthesis.

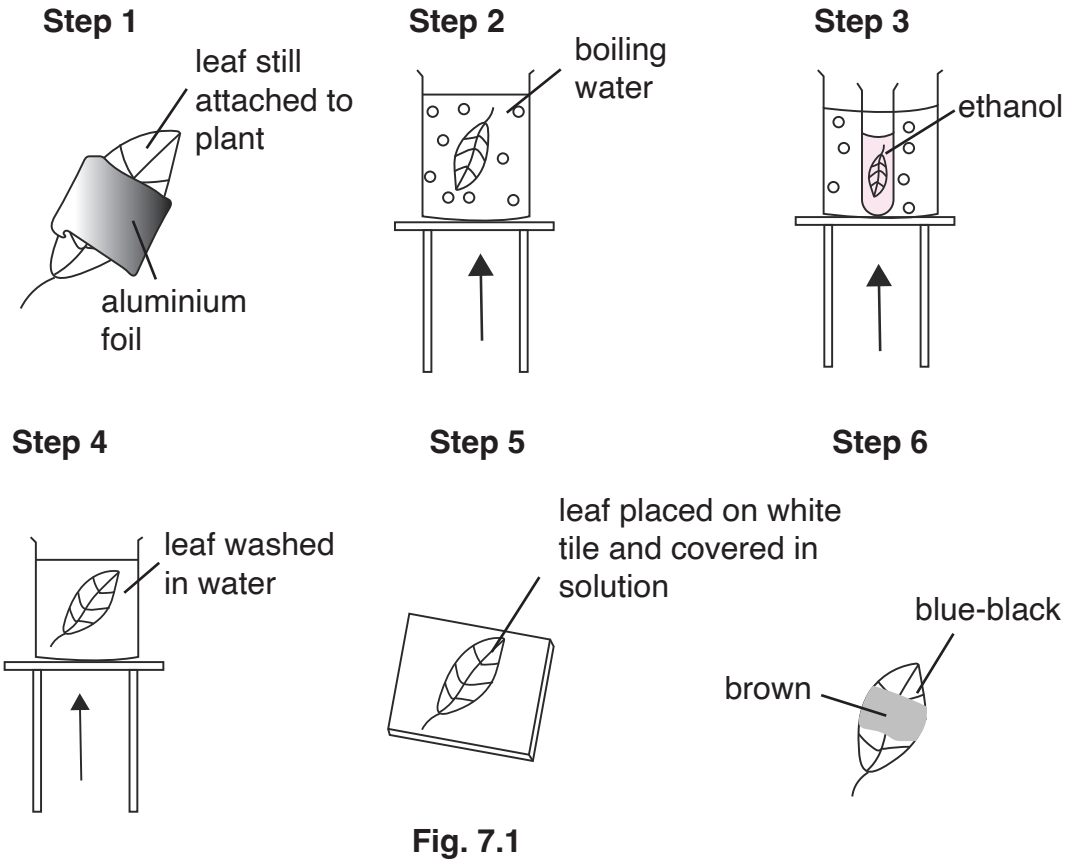

Fig. 7.1

(i) State what is being investigated in Fig. 7.1.

..... [1]

(ii) State why the ethanol is heated in boiling water instead of heating it directly with the Bunsen burner in **step 3**.

..... [1]

(iii) Suggest why the leaf is washed in water in **step 4**.

..... [1]

(iv) Name the solution used in **step 5**.

..... [1]

[Turn over

(v) After adding the solution in **step 5**, brown and blue-black colours are observed as shown in **step 6**.

Explain the colour changes observed in **step 6**.

.....

.....

.....

..... [3]

(vi) Suggest a conclusion for the experiment.

..... [1]

(b) Describe an experiment you can carry out to find out if carbon dioxide is present in exhaled air.

.....

.....

..... [2]

[Total : 10 marks]