

CANDIDATE  
NAME

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CENTRE  
NUMBER

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CANDIDATE  
NUMBER

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## SECONDARY 2

12/08/24

SCIENCE

August 2024

Paper 2

**45 minutes**

You must answer on the question paper.

No additional materials are needed.

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### INSTRUCTIONS

- Answer **all** questions.
- Use the black or dark blue pen.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided
- Do **not** use an erasable pen or correction fluid.

### INFORMATION

- The total mark for this paper is 50.
- The number of marks for each question or part question is shown in brackets [ ].

Invigilator's Name:.....

Invigilator's Sign:.....

For Teacher's Use	
Question No	Marks
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
Total	/ 50



1.

Different cells have different functions.

Draw a line from each **cell** to its **function**.

**cell**

**function**



absorbs water and mineral ions from the soil



transmits nerve impulses around the body



fertilises the egg cell

carries oxygen around the body

[2]

[Total: 2]

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2.

There are seven characteristics of living things. These are called life processes.

In humans, different organs specialise in different life processes.

Draw a line from each **organ** to its **life process**.

One has been done for you.

organ	life process
	excretion
intestine	growth
kidney	movement
muscle	nutrition
spinal cord	reproduction
uterus	respiration
	sensitivity

[4]

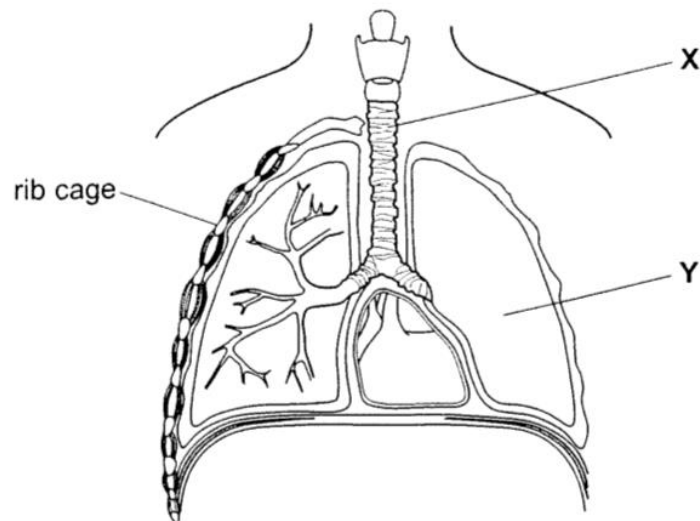
[Total: 4]

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3.

The diagram shows some of the organs in the respiratory system.



(a) Name parts X and Y.

part X .....

part Y ..... [1]

(b) Gaseous exchange takes place inside organ Y.

Which gases are exchanged?

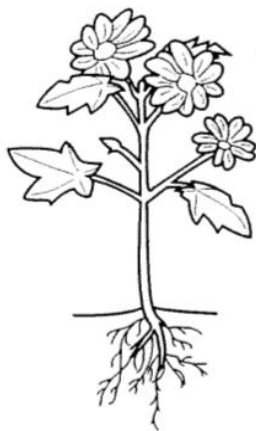
..... and ..... [1]

[Total: 2]

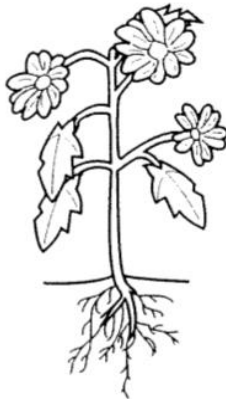


4.

The diagrams show a healthy plant and a wilting plant.



healthy plant



wilting plant

The table shows the volume of water entering and leaving four different plants in one day.

plant	water entering the plant / cm <sup>3</sup>	water leaving the plant / cm <sup>3</sup>
A	15	15
B	21	14
C	5	16
D	24	22

(a) Which plant, A, B, C or D, will be the first to wilt?

..... [1]

(b) Alwin plans an investigation to find out if plants lose more water as the temperature increases.

(i) State the variable that he needs to change in his investigation.

..... [1]

(ii) Suggest **one** variable that Alwin should keep the same in his investigation.

..... [1]

[Total: 3]



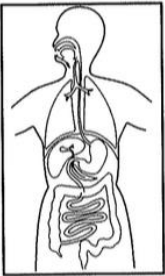
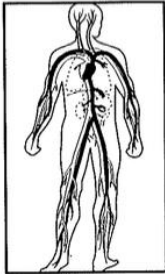
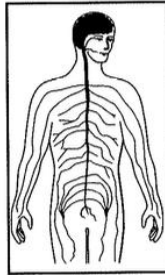
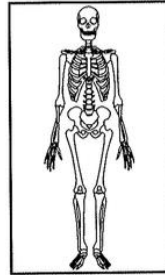
5.

The diagrams show four major human organ systems.

Draw straight lines to join each organ system to its correct name.

Then draw straight lines to join the name of each system to its correct function.

One has been done for you.

	name of organ system	function
	circulatory system	transports substances around the body
	digestive system	breaks down food and absorbs nutrients
	nervous system	co-ordinates and controls actions
	skeletal system	provides support, protection and allows movement

[3]

[Total: 3]



6.

There are seven characteristics shared by all living organisms.

(a) Complete the following list.

Sensitivity  
.....  
.....  
.....  
.....  
.....  
.....  
.....

[3]

(b) Which process releases energy from food?

..... [1]

(c) Which process represents the removal of waste?

..... [1]

[Total: 5]

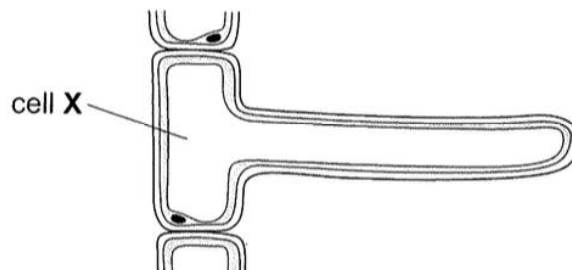




7.

Plants take in water and mineral salts through their roots.

(a) The diagram shows a cell in a plant root.



(i) Name cell X.

[1]

(ii) Explain how cell X is adapted to absorb water from the soil.

[1]

(b) Plants need to take in minerals to help with growth.

(i) Which of these minerals is required for encouraging strong growth?

Underline the correct answer.

**carbonate**

**hydroxide**

**nitrate**

**oxide**

[1]

(ii) Essential minerals can be applied to the soil as artificial fertilisers or organic fertilisers.

Name **one** organic fertiliser.

[1]

[Total: 4]



8.

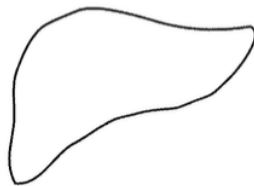
The diagrams show organs of the human body.  
Give the names of these organs.



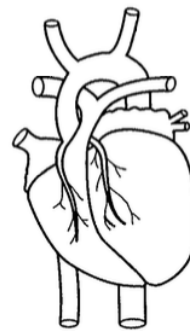
(a) .....



(b) .....



(c) .....



(d) .....

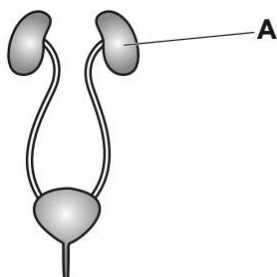
[4]

[Total: 4]



9.

The diagram shows the human excretory (renal) system.



(a) (i) Name the organ labelled **A**.

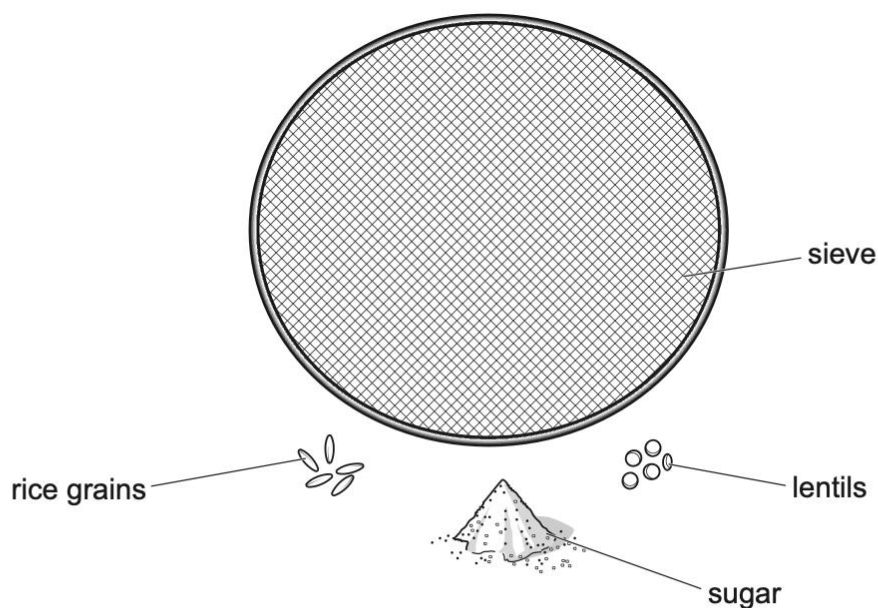
..... [1]

(ii) Name the waste product that organ **A** removes from the body.

..... [1]

(b) Scientists use models to explain how things work.

The diagram shows apparatus and materials used to model the excretory system.



The rice grains, lentils and sugar are added to a beaker of water and stirred.

The mixture is poured through the sieve.



(i) Draw a line from each **material or piece of apparatus** to the **part of the human excretory system** it represents.

Draw **only four** lines.

material or piece of apparatus	part of human excretory system
<div>lentils</div>	<div>blood cells</div>
<div>rice grains</div>	<div>kidney</div>
<div>sieve</div>	<div>waste product</div>
<div>sugar</div>	

[3]

(ii) Describe how this model shows the function of the human excretory system.

.....

.....

.....

.....

[2]

[Total: 7]

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10.

Plants need magnesium and nitrates for healthy growth.

(a) (i) What substance do plants make using magnesium?

..... [1]

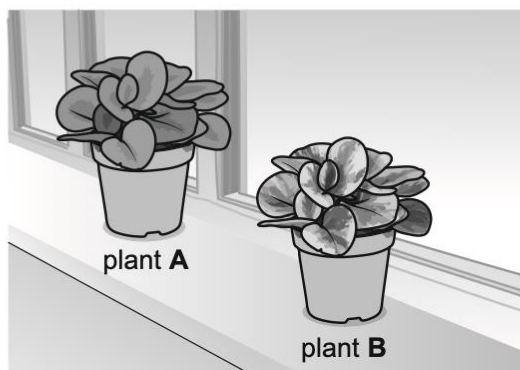
(ii) What type of substance do plants make using nitrates?

..... [1]

(b) The diagram shows plant **A** and plant **B**.

Plant **A** has green leaves and plant **B** has green and yellow leaves.

The plants are both the same size and belong to the same species.



(i) Both plants receive the same amount of light and water.

After one week plant **A** is bigger than plant **B**.

Explain why.

..... [2]

(ii) Plants remove carbon dioxide from the air and replace it with another gas.

What is the name of this gas?

..... [1]

(c) A farmer grows cabbage plants in his field.

There are spaces between each cabbage plant.

Suggest **one** reason why it is important to have spaces between each cabbage plant.

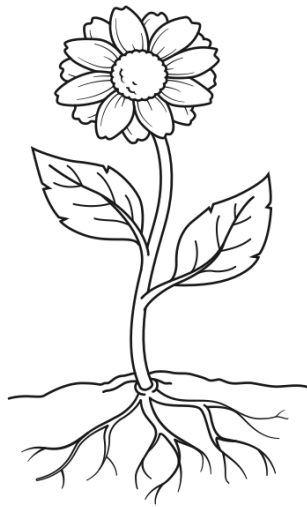
..... [1]

[Total: 6]



11.

The diagram shows a flowering plant.



Plants need to absorb water and transport it to all of their living parts.

(a) (i) Name the process that plants use to **absorb** water through the roots.

..... [1]

(ii) Name the tissue that **transports** water to different parts of the plant.

..... [1]

(iii) Name the part of the plant that loses water by transpiration.

..... [1]

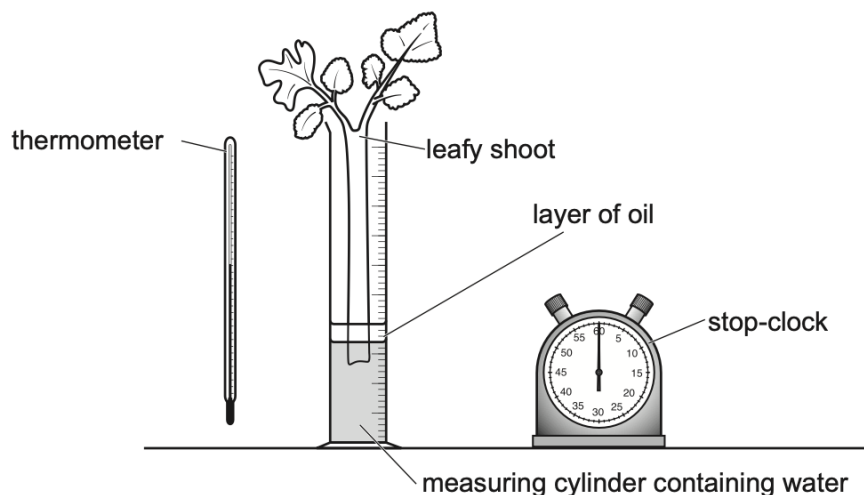
[Total: 3]



12.

(b) Several factors affect the amount of water lost by transpiration.

Chen uses this equipment to measure the rate of transpiration.



Chen predicts that the temperature of the air affects the rate of transpiration.

(i) Which variable must Chen change to test his prediction?

..... [1]

(ii) State **two** variables that Chen needs to control in his investigation.

1 .....

2 .....

[2]

(iii) Describe how Chen measures the rate of transpiration.

.....

..... [1]

(iv) Predict the effect of changing the temperature of the air on the rate of transpiration.

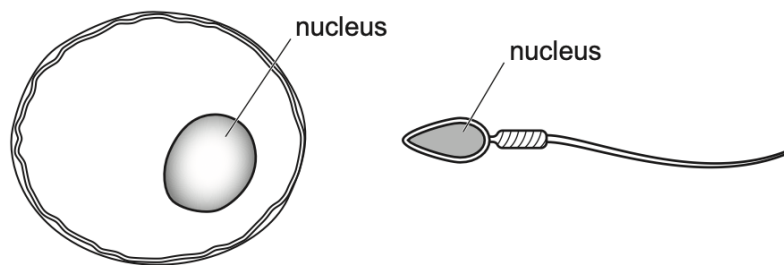
.....

..... [1]

[Total: 5]

13.

The diagram shows an egg cell and a sperm cell.



NOT TO SCALE

- (a) (i) The nucleus of the egg cell and the nucleus of the sperm cell both contain chromosomes.

What are chromosomes made of?

..... [1]

- (ii) Describe what happens to the nucleus of the egg cell and the nucleus of the sperm cell during fertilisation.

..... [1]

[Total: 2]

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