Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

BIOLOGY **0610/32**

Paper 3 Theory (Core) **October/November 2018**

1 hour 15 minutes

Candidates answer on the Question Paper.

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

Write your Centre number, candidate number and name on all the work you hand in.
Write in dark blue or black pen.
You may use an HB pencil for any diagrams or graphs.
Do not use staples, paper clips, glue or correction fluid.
DO **NOT** WRITE IN ANY BARCODES.

Answer **all** questions.

Electronic calculators may be used.
You may lose marks if you do not show your working or if you do not use appropriate units.

At the end of the examination, fasten all your work securely together.
The number of marks is given in brackets [ ] at the end of each question or part question.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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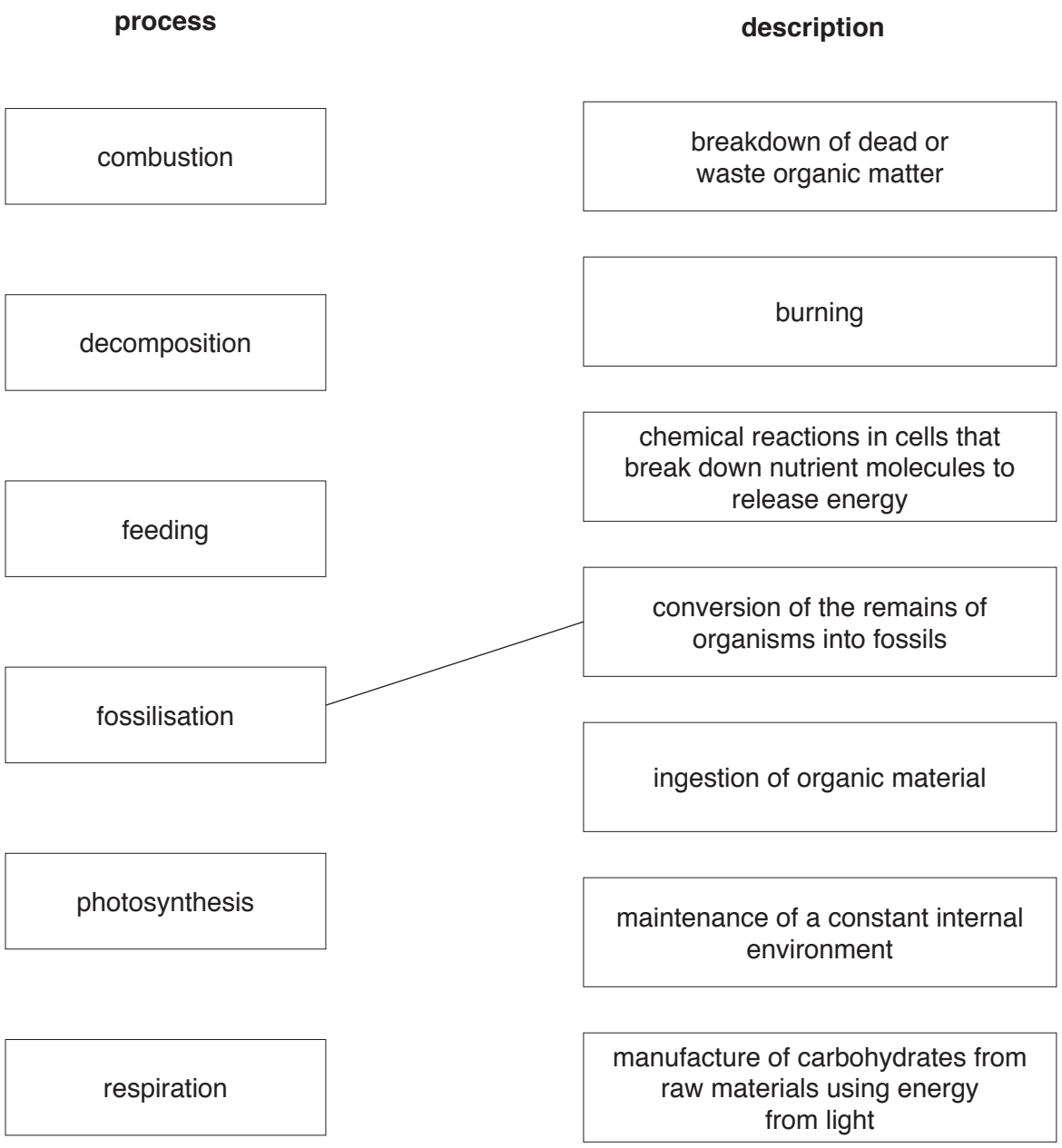
1 The boxes on the left contain the names of processes from the carbon cycle.

View solution

The boxes on the right contain some descriptions of processes.

Draw **one** straight line from each process to link the process to its description.

An example has been done for you.



[5]

[Total: 5]

2 Some students investigated the conditions needed for the germination of maize seeds. They used maize seeds from a packet of seeds they had purchased in a shop.

Three dishes were used, each containing cotton wool and the same number of maize seeds, as shown in Fig. 2.1.

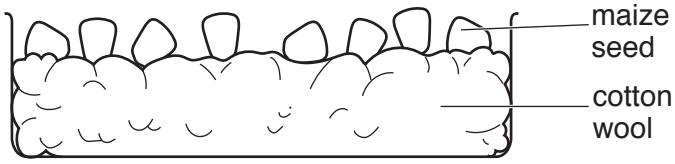


Fig. 2.1

Table 2.1 shows the conditions provided for each dish.

Table 2.1

conditions	dish		
	A	**B**	**C**
treatment of cotton wool	damp	dry	damp
temperature / °C	20	20	3
light or dark	light	light	dark

The seeds were left for five days and then observed.

The results are shown in Table 2.2.

Table 2.2

dish	results
A	all seeds germinated
B	no seeds germinated
C	no seeds germinated

(a) (i) Explain why the seeds in dishes **B** and **C** did not germinate.

View solution

Dish **B** .....

.....

Dish **C** .....

.....

[2]

(ii) In a second investigation, maize seeds were placed in a dish containing damp cotton wool.

View solution

This dish was left in the dark for five days at 20 °C.

Predict and explain the results.

prediction .....

.....

explanation .....

.....

.....

[2]

(b) A student gathered 70 maize seeds from plants growing in a field. The seeds were placed in dishes containing damp cotton wool.

View solution

After five days only 64 seeds had germinated.

(i) Calculate the percentage of seeds that germinated.

Show your working.

Give your answer to the nearest whole number.

.....%

[2]

(ii) Suggest a reason why some of the seeds did not germinate.

View solution

.....

.....

.....[1]

[Total: 7]

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3 This question is about biological molecules.

View solution

Choose words or phrases from the list to complete the sentences.

Each word or phrase may be used once, more than once, or not at all.

calcium	**carbon**	**carbon dioxide**	**carbohydrate**
cellulose	**chloroplasts**	**fat**	**glycerol**
glycogen	**iron**	**methane**	**nitrogen**
oxygen	**protein**	**starch**	

Fats are composed of the elements ..... , hydrogen and

..... only. All proteins contain these three elements and the element

..... .

Glucose is a type of ..... .

Animals store excess glucose as ..... in the liver.

Plants store excess glucose as ..... . Plants also convert glucose to

..... which is used to make cell walls.

[7]

[Total: 7]

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4 **(a)** Fig. 4.1 shows teeth in a human skull.

View solution



Fig. 4.1

Add label lines and labels to Fig. 4.1 to identify an incisor tooth and a molar tooth. [2]

(b) Fig. 4.2 represents the teeth of two adults, **D** and **E**. It shows the numbers of the types of teeth and the number of decayed teeth.

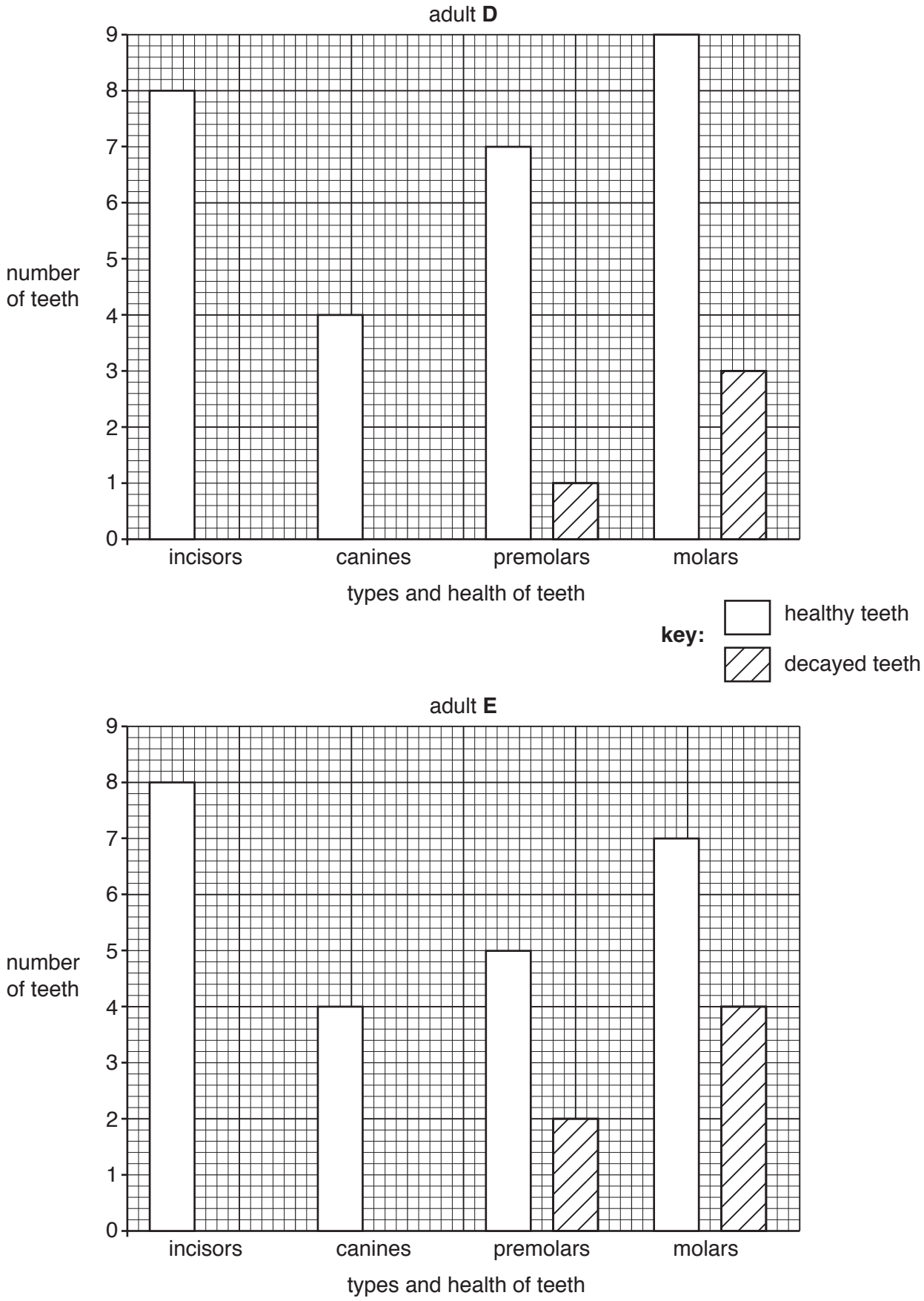

Fig. 4.2

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A healthy adult human has **32** teeth.

(i) State the number of teeth **E** has lost.

View solution

.....[1]

(ii) State the number of decayed teeth present in **D**.

View solution

.....[1]

(iii) Suggest **two** reasons why **D** and **E** have different numbers of decayed teeth.

View solution

1 .....

.....

2 .....

.....

[2]

(iv) Identify the type of tooth that decays most frequently in Fig. 4.2.

View solution

.....[1]

(c) Describe how bacteria are involved in tooth decay.

View solution

.....

.....

.....

.....

.....[2]

[Total: 9]

5 **(a)** Fig. 5.1 shows a diagram of part of the alimentary canal and associated structures.

View solution

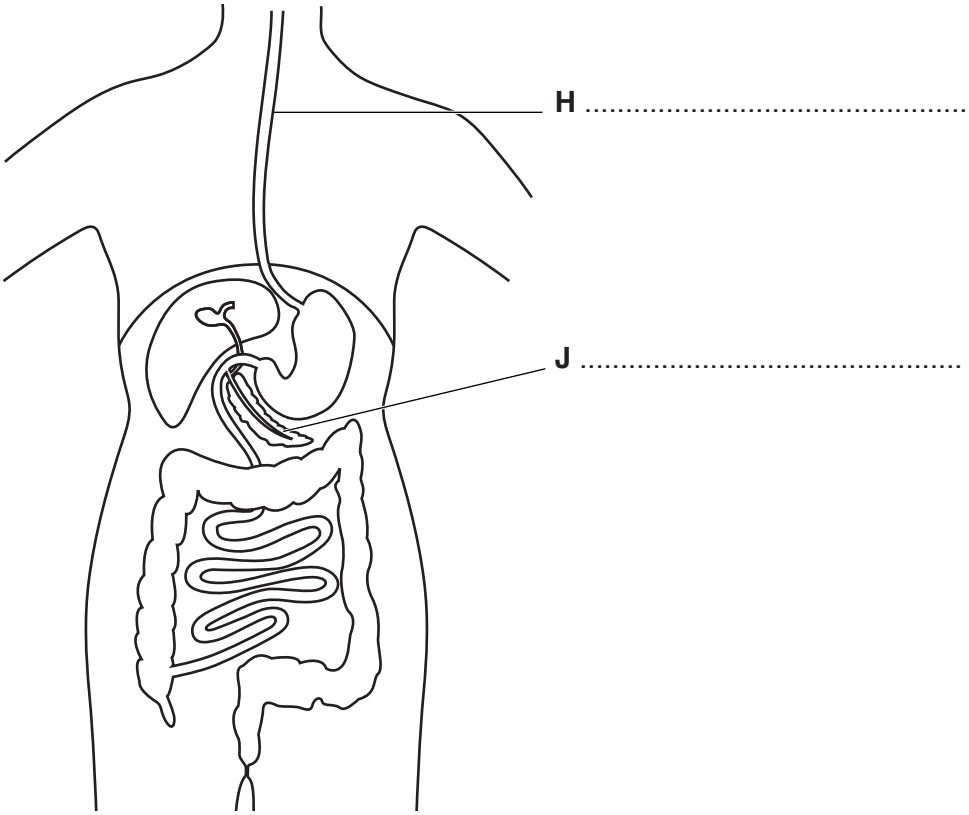

Fig. 5.1

(i) State the names of the structures labelled **H** and **J**.

Write your answers on Fig. 5.1. [2]

(ii) On Fig. 5.1 draw label lines with letters to show:

View solution

N where faeces are stored

P where **most** water is absorbed

R where digested food is absorbed.

[3]

(b) **(i)** State the name of the process that is defined as the movement of digested food molecules into the cells of the body where they are used, becoming part of the cells.

.....[1]

(ii) State the name of the process that removes faeces from the body.

.....[1]

View solution

(c) Fig. 5.2 shows how the rate of reaction of a digestive enzyme changes with pH.

View solution

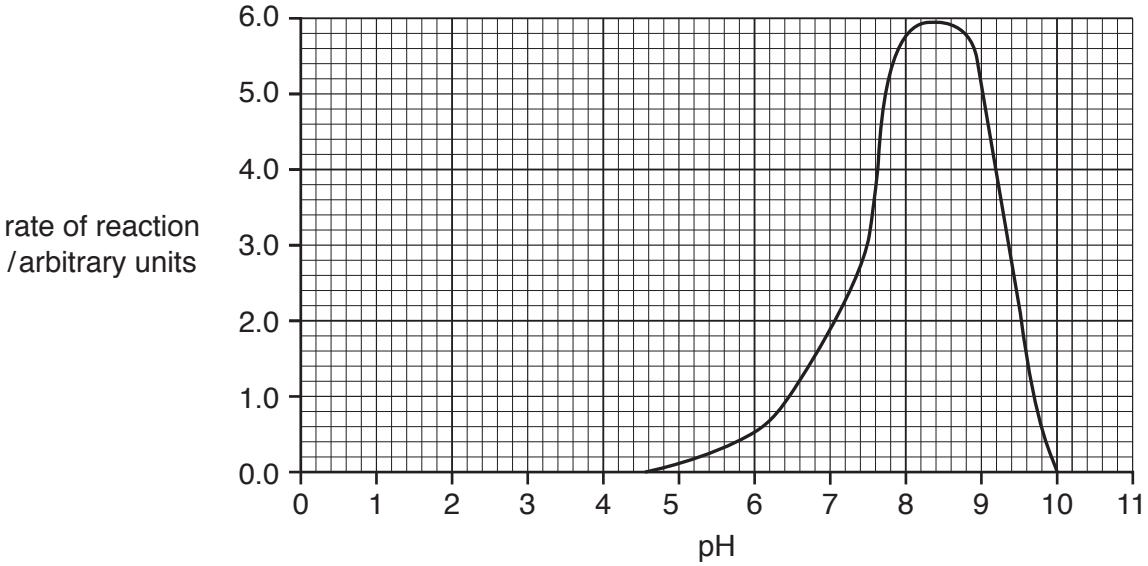

Fig. 5.2

(i) Describe the effect of the increase in pH on the rate of reaction shown in Fig. 5.2.

.....

.....

.....

.....

.....[2]

(ii) State **one** factor other than pH that will affect enzyme activity.

.....[1]

[Total: 10]

View solution

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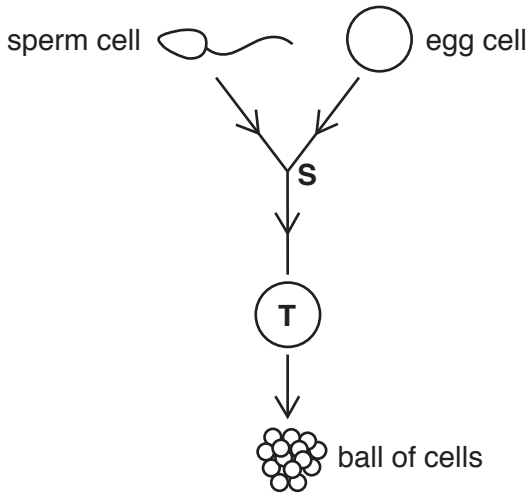
6 Fig. 6.1 shows the sequence of events that occur in sexual reproduction.



not to scale

Fig. 6.1

(a) (i) State the name of cell **T** in Fig. 6.1.

View solution

.....[1]

(ii) State the name of the process that takes place at **S** to form cell **T** in Fig. 6.1.

View solution

.....[1]

(iii) State where in the human body process **S** takes place.

.....[1]

View solution

(b) (i) Some humans have the ability to roll their tongues and some cannot roll their tongues.

This characteristic is controlled by genes.

View solution

Fig. 6.2 shows two boys: boy **A** cannot roll his tongue and boy **B** can roll his tongue.



boy **A** boy **B**

Fig. 6.2

The allele for tongue rolling (**T**) is dominant to the allele for non-tongue rolling (**t**).

Fig. 6.3 shows a family tree for this characteristic. Individual **1** and his partner are both heterozygous for tongue rolling.

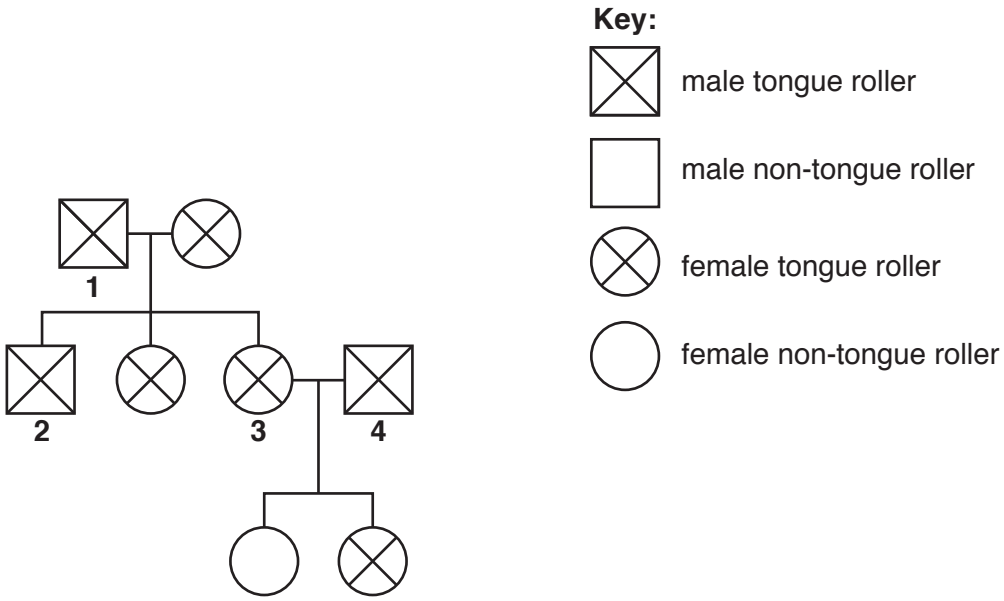


Fig 6.3

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Complete Table 6.1 by inserting the genotypes of the numbered individuals in Fig. 6.3.

Table 6.1

individual	genotype
1	
3	
4	

[3]

(ii) Individual **2** in Fig. 6.3 is heterozygous for tongue rolling. He marries a woman who cannot roll her tongue.

State all of the possible genotypes of their children and predict the ratio of phenotypes for their children.

possible offspring genotypes: .....

ratio of phenotypes: .....

[2]

[Total: 8]

View solution

7 **(a)** Complete the sentences by placing appropriate words in the spaces to give a definition of transpiration.

View solution

In transpiration water is lost from the ..... of a plant.

The water ..... from the surface of the .....

cells and water vapour is produced.

The water vapour moves by ..... out of the plant through pores

called ..... .

[5]

(b) Complete Table 7.1 by

- stating **two** environmental conditions that affect the rate of transpiration
- stating how a **decrease** in each environmental condition affects the rate of transpiration.

View solution

Table 7.1

environmental condition	effect of a decrease on the rate of transpiration

[4]

[Total: 9]

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8 Fig. 8.1 shows a photomicrograph of some red blood cells.

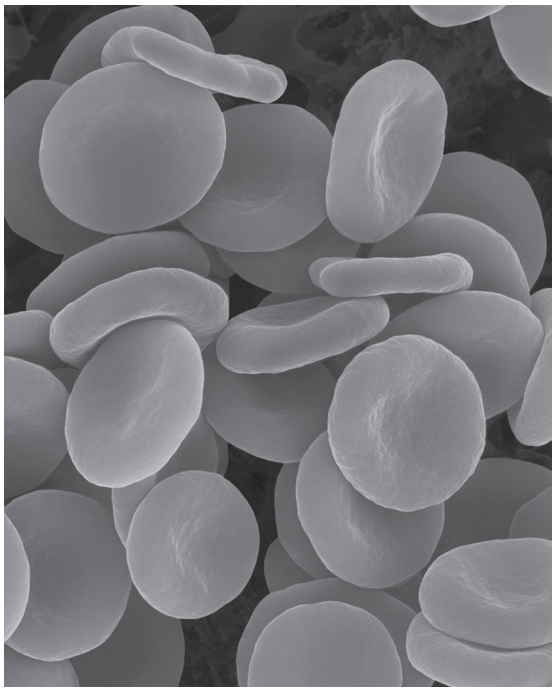

Fig. 8.1

(a) **(i)** State the function of a red blood cell.

View solution

.....[1]

(ii) State **two** ways in which a red blood cell is adapted to its function.

View solution

1 .....

.....

2 .....

.....

[2]

(b) State the name of a component of blood that is responsible for clotting.

View solution

.....[1]

(c) **(i)** State the name of the disease caused by a blockage in the arteries supplying the heart muscle.

.....[1]

(ii) List **three** risk factors that increase the risk of a blockage in the arteries supplying the heart muscle.

1 .....

2 .....

3 .....

[3]

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(d) Fig. 8.2 is a diagram of the circulatory system. The blood vessels are labelled with letters.

View solution

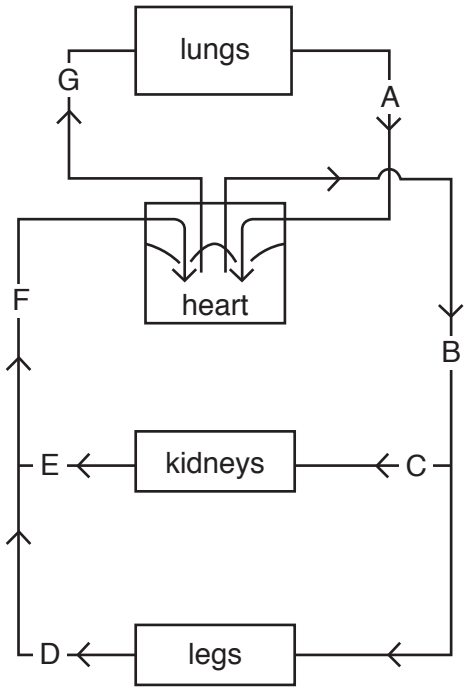

Fig 8.2

Complete Table 8.1 by identifying the letter of the named blood vessels in Fig. 8.2.

Table 8.1

name of blood vessel	letter
aorta	
pulmonary artery	
renal vein	
vena cava	

[4]

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(e) Describe how the structures of the circulatory system maintain a one-way flow of blood.

.....

.....

.....

.....

.....

.....

.....

.....

.....[4]

[Total: 16]

View solution

9 **(a)** Some animals are farmed intensively.

View solution

Describe the negative impacts to an ecosystem of intensive livestock production.

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

(b) State why fertilisers, herbicides and insecticides are used in farming.

View solution

fertilisers .....

.....

herbicides .....

.....

insecticides .....

.....

[3]

(c) Fertilisers, herbicides and insecticides can all pollute water.

View solution

List **two** other sources of water pollution.

1 .....

2 .....

[2]

[Total: 9]

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