Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	
CANDIDATE NUMBER	

3840572322

BIOLOGY **0610/32**

Paper 3 Theory (Core) **May/June 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.

This document consists of **17** printed pages and **3** blank pages.

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CAMBRIDGE International Examinations

[Turn over

1 Fig. 1.1 shows a diagram of the male reproductive system.

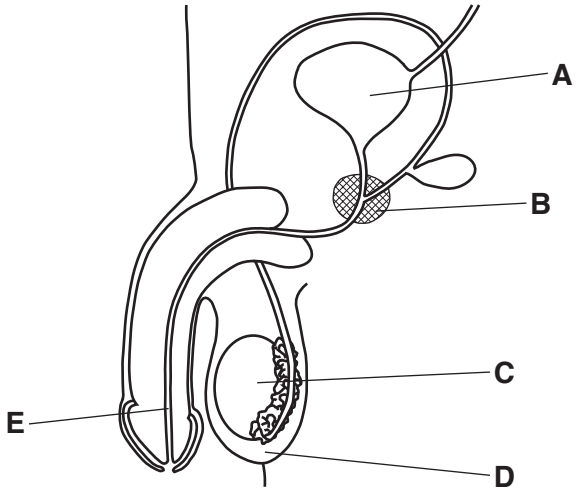


Fig. 1.1

(a) State the letter on Fig. 1.1 that identifies:

where sperm are made .....

the part that carries urine and sperm out of the body .....

where fluid that is added to the sperm is made. .....

[3]

(b) Sperm leaves the male reproductive system to fertilise the egg cell in the female reproductive system.

Describe the path taken by the sperm after it has left the male reproductive system until it fertilises the egg.

.....

.....

.....

.....

.....

.....

.....[3]

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(c) Sperm contain chromosomes that can become part of a zygote.

(i) Complete the definition of the term *chromosome*.

Use words from the list.

Each word can only be used once or not at all.

amino acids **cells** **DNA** **hormones**

information **genes** **nerves** **protein**

A chromosome is a thread-like structure of ..... , carrying genetic ..... in the form of ..... .

[3]

(ii) State **all** the possible sex chromosomes that a normal sperm can contain.

.....[1]

(iii) State **two** ways that sperm are adapted to their function.

1 .....

2 .....

[2]

[Total: 12]

2 **(a)** Fig. 2.1 shows a diagram of a leaf.

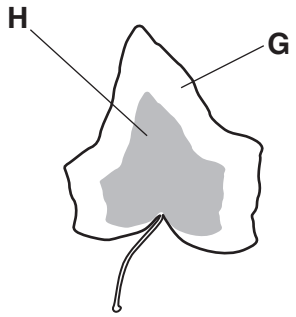


Fig. 2.1

- The part of the leaf labelled **G** contains no chlorophyll and is a white colour.
- The part of the leaf labelled **H** contains chlorophyll and is a green colour.

Glucose produced during photosynthesis is stored in the leaf as starch.

The leaf was boiled in ethanol to remove the chlorophyll. The leaf was then tested for the presence of starch with iodine solution.

(i) Predict the colour of the part of the leaf labelled **G** after iodine solution has been added.

.....[1]

(ii) Predict the colour of the part of the leaf labelled **H** after iodine solution has been added.

.....[1]

(iii) State a conclusion about chlorophyll from this investigation.

.....

.....

.....[1]

(b) A similar leaf was kept in the dark for 24 hours and then tested for the presence of starch.

The leaf contained no starch.

Explain why the leaf contained no starch.

.....

.....

.....[1]

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(c) Water is required for the process of photosynthesis.

(i) Describe where **and** how water enters a plant.

.....

.....

.....

.....

.....

.....

.....[3]

(ii) Describe **one** function of water in a plant other than for photosynthesis.

.....[1]

(iii) State the name of the tissue in a plant that transports water.

.....[1]

(iv) State the name of the part of a leaf through which water vapour is lost from the plant.

.....[1]

[Total: 10]

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[Turn over

3 **(a)** Eating food contaminated by bacteria can cause illness.

This type of illness is called food poisoning.

Fig. 3.1 shows the number of cases of food poisoning per 100 000 people in the population in one country.

(i) State the year with the highest number of cases of food poisoning in Fig. 3.1.

.....[1]

(ii) State the number of cases of food poisoning per 100 000 people in the population in the year 1996 in Fig. 3.1.

..... cases per 100 000 people [1]

(iii) Describe the trend in the number of cases of food poisoning between 2003 and 2011 in Fig. 3.1.

.....

.....

.....

.....

.....

.....

.....[3]

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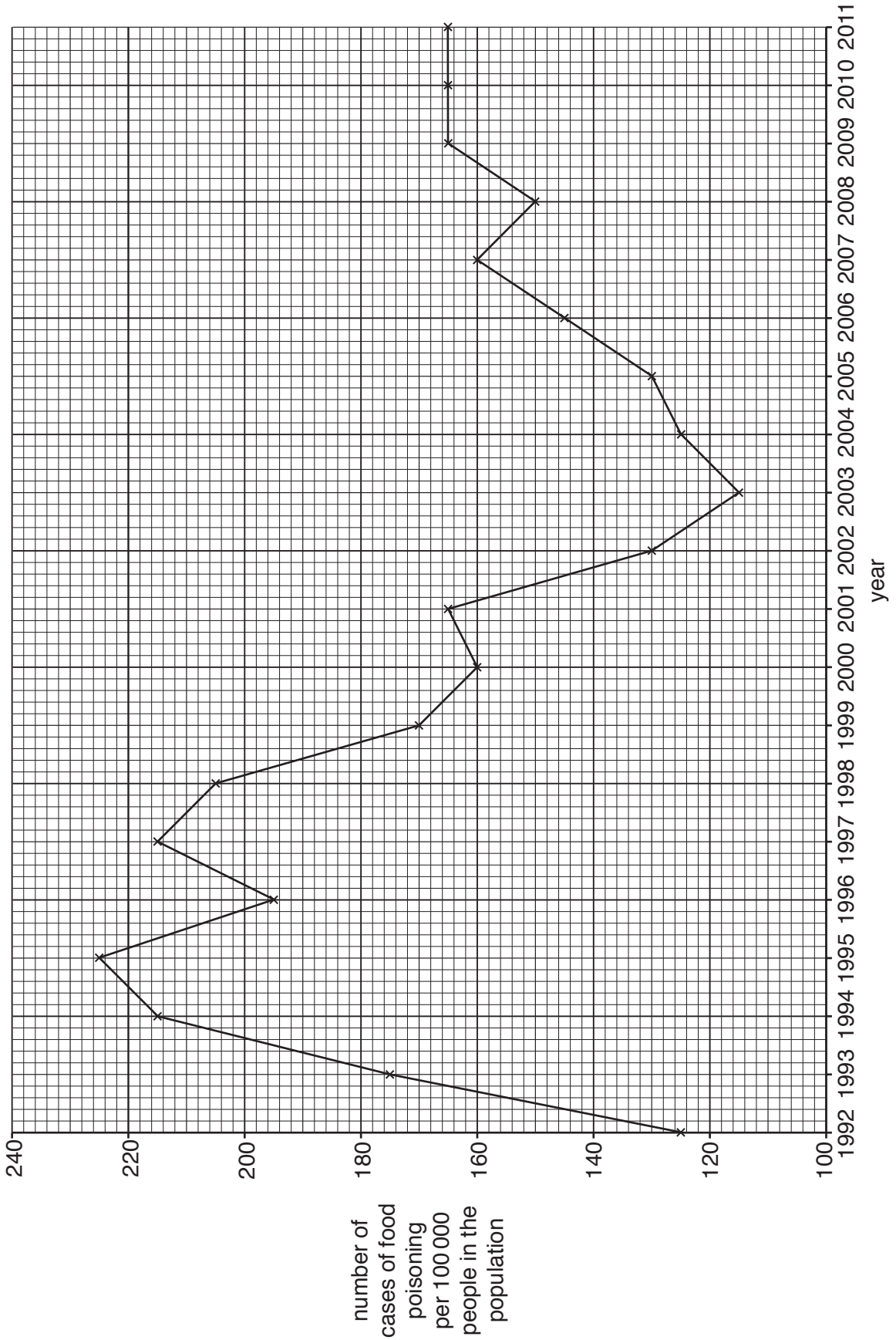

number of cases of food poisoning per 100 000 people in the population
240
220
200
180
160
140
120
100
1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011
year

Fig. 3.1

(b) Food poisoning is caused by different types of bacteria.

A common type of bacterium that causes food poisoning is *Campylobacter jejuni*.

State the genus of this species.

.....[1]

(c) Food poisoning can result in vomiting and diarrhoea.

Outline the treatment of diarrhoea.

.....

.....

.....[1]

(d) The body has several defence mechanisms against bacteria.

Table 3.1 shows three types of defence mechanism.

The word list gives examples of these defence mechanisms.

In Table 3.1 write the examples under the correct type of defence.

Use each word once only.

antibodies **mucus** **nasal hairs**

phagocytosis **skin** **stomach acid**

Table 3.1

cellular	chemical	mechanical

[3]

[Total: 10]

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4 The eye is a sense organ.

Fig. 4.1 is a diagram of a section through the eye.

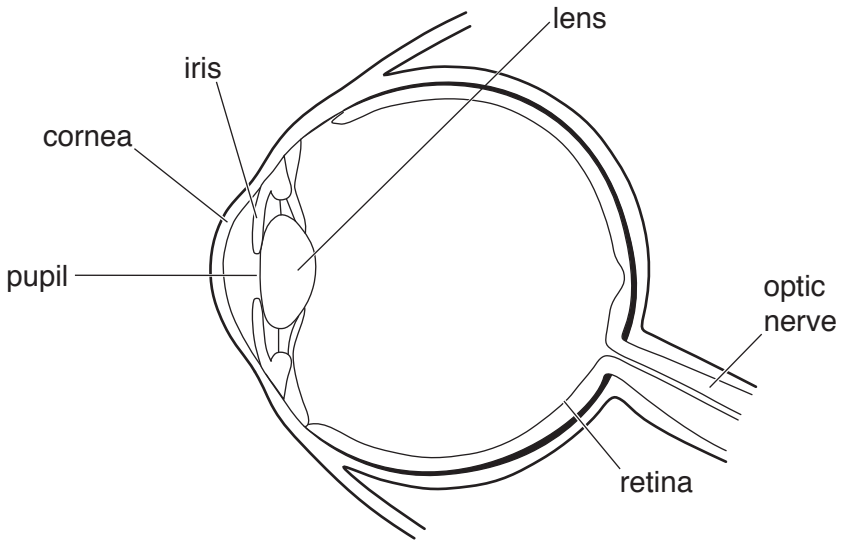


Fig. 4.1

(a) Shade in the part of the eye that gives people different eye colours on Fig. 4.1. [1]

(b) The boxes on the left show parts of the eye.

The boxes on the right show the functions of different parts of the eye.

Draw four lines to link the part of the eye with its correct function.

One has been done for you.

part	function
cornea	controls how much light enters the eye
iris	refracts light
lens	focuses light
retina	carries impulses to the brain
optic nerve	contains light receptors

[3]

(c) The skin is another sense organ.

Fig. 4.2 shows a photograph of the skin on a person's arm.

The skin of the person is responding to a stimulus.

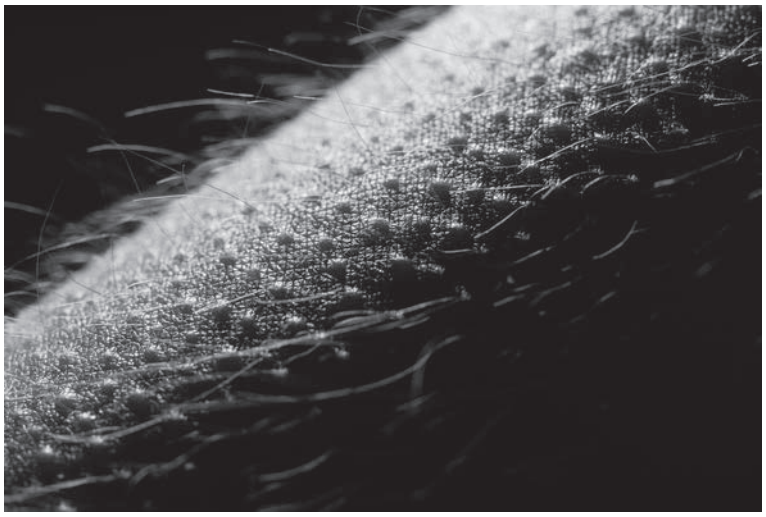


Fig. 4.2

(i) State the stimulus for the response shown in Fig. 4.2.

.....[1]

(ii) State the effector that causes the response shown in Fig. 4.2.

.....[1]

[Total: 6]

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5 **(a)** Fig. 5.1 shows part of the carbon cycle. Some of the arrows are missing.

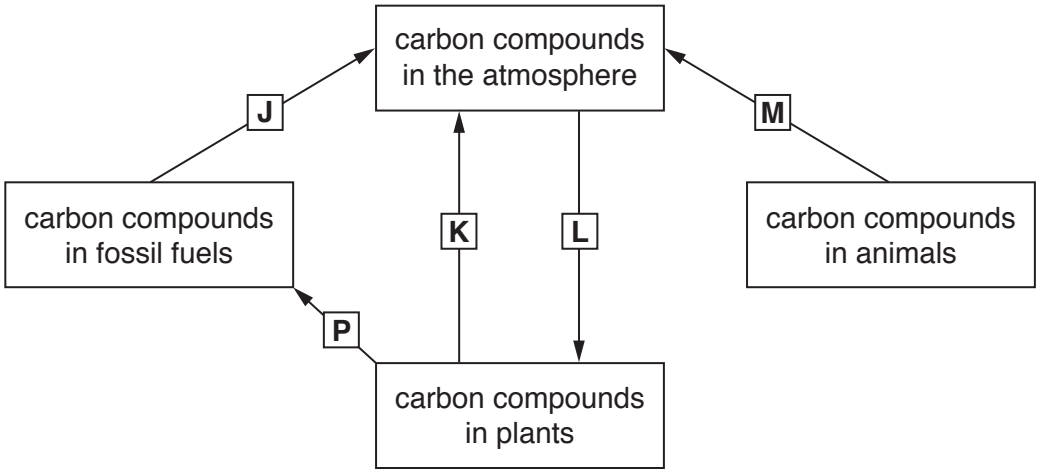


Fig. 5.1

(i) State **all** the letters in Fig. 5.1 that represent respiration.

.....[2]

(ii) State the name of the process that the letter **J** represents.

.....[1]

(iii) Draw an arrow on Fig. 5.1 to represent the process of feeding. [1]

(b) Carbon dioxide is a greenhouse gas.

State the name of **one other** greenhouse gas.

.....[1]

(c) Deforestation can cause an increase in the concentration of carbon dioxide in the atmosphere.

(i) State **two** other undesirable effects of deforestation.

1 .....

2 .....
[2]

(ii) State **two** uses for land that has been cleared of trees.

1 .....

2 .....
[2]

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(d) The forests in Brazil contain many endangered species.

Table 5.1 shows the area of forest that was removed in Brazil each year between 2006–2010.

Table 5.1

year	area of forest removed / km^2
2006	14 286
2007	12 651
2008	11 911
2009	7464
2010	7000

(i) Calculate the average area of forest removed per year from 2006 to 2010.

Show your working.

.....km^2
[2]

(ii) Describe the trend in the data shown in Table 5.1.

.....

.....

.....[1]

(iii) Suggest **two** reasons for the trend you have described in part **(ii)**.

1 .....

2 .....
[2]

[Total: 14]

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6 Fig. 6.1 shows a diagram of the gas exchange system.

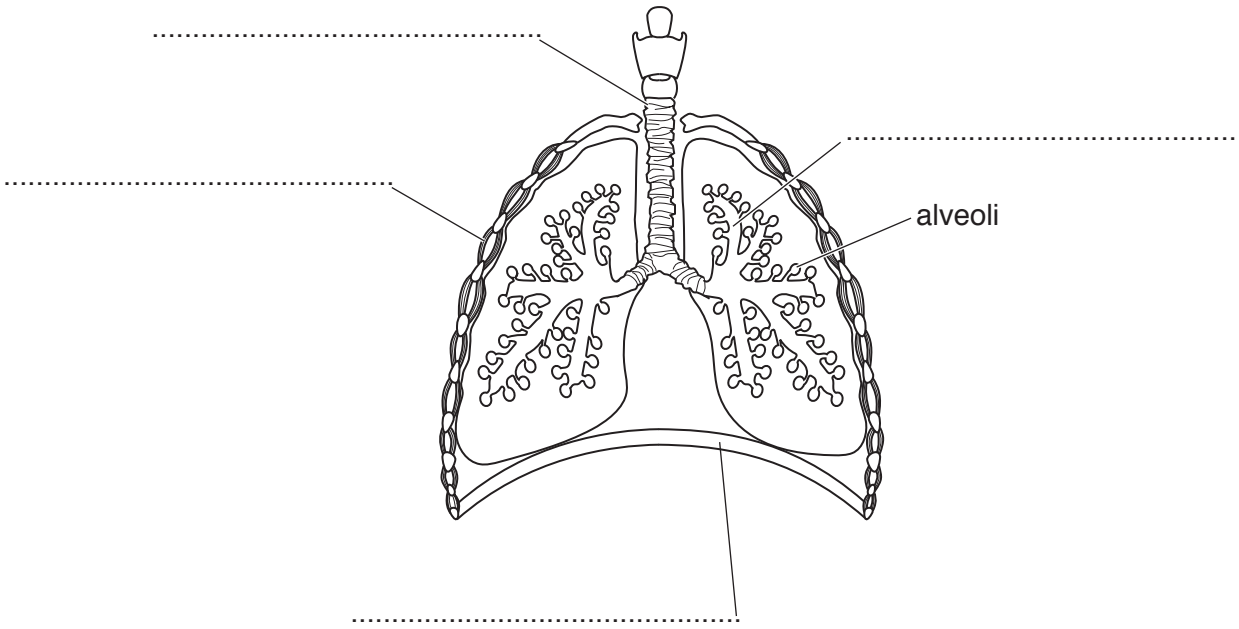


Fig. 6.1

(a) Complete the labelling of Fig. 6.1 using the words from the list.

bronchiole **diaphragm** **intercostal muscle** **trachea**

[4]

(b) Alveoli are gas exchange surfaces.

State **two** features that make alveoli good gas exchange surfaces.

1 .....

2 .....

[2]

(c) There is less oxygen in expired air than in inspired air.

(i) Describe **two other** ways in which expired air is different from inspired air.

1 .....

2 .....

[2]

(ii) State the name of a process that uses oxygen in the body.

.....[1]

(d) State an example of a cell and an organ from the gas exchange system.

cell .....

organ .....
[2]

[Total: 11]

7 Excretion is the removal of toxic substances or substances in excess, from the body.

(a) Excess water is excreted from the lungs and the kidneys.

State the name of **one other** substance that is excreted from

the lungs .....

the kidneys .....
[2]

(b) The volume and concentration of urine varies with changing conditions.

Table 7.1 shows three changing conditions.

Write **increase** or **decrease** in each of the boxes in Table 7.1 to show how each change affects the volume and the concentration of urine.

Table 7.1

changing condition	volume of urine	concentration of urine
increase in water intake		
increase in temperature		
increase in exercise		

[3]

(c) Excretion is a characteristic of living organisms.

Growth is another characteristic of living organisms.

(i) Define the term *growth*.

.....

.....

.....[2]

(ii) State **three** characteristics of living organisms other than excretion and growth.

1 .....

2 .....

3 .....
[3]

[Total: 10]

8 Blood group is an example of discontinuous variation.

The blood groups of patients in a hospital were recorded.

Fig. 8.1 shows the results.

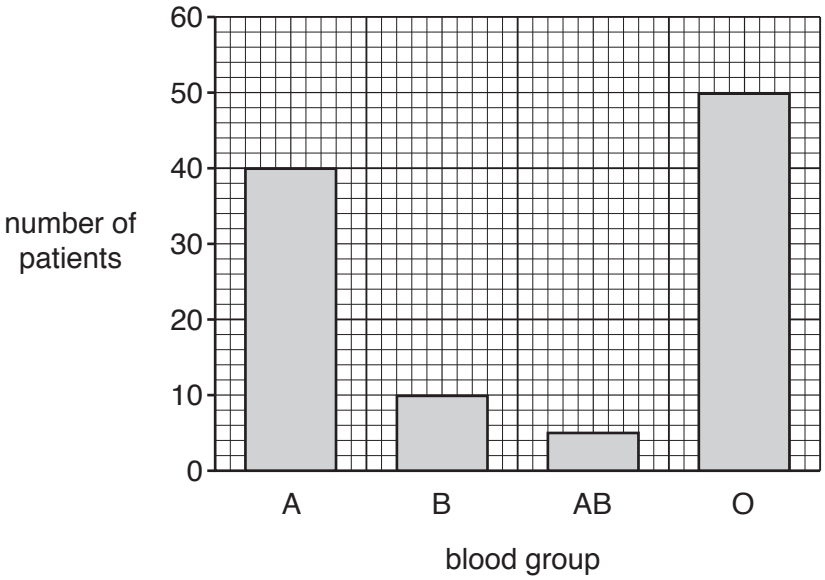


Fig. 8.1

(a) Explain how Fig. 8.1 shows that blood group is an example of discontinuous variation.

.....

.....

.....[1]

(b) Table 8.1 shows different examples of variation.

Tick all the boxes that show examples of discontinuous variation.

Table 8.1

attached or unattached earlobes	
foot length	
gender (male or female)	
height	
tongue rolling	
weight	

[3]

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(c) Variation can be caused by mutation.

The word mutation can be connected to the words in the boxes on the right to make a complete sentence.

Draw **three** lines to join the word 'mutation' to the words in the boxes to make three correct sentences.

Mutation	is a genetic change.
	is a change in the environment.
	only occurs in plants.
	forms new alleles.
	changes your physical appearance only.
	can be caused by ionising radiation.

[3]

[Total: 7]

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