Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME	
CENTRE NUMBER	CANDIDATE NUMBER

0687622809

BIOLOGY **0610/32**

Paper 3 Theory (Core) **February/March 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 **16** printed pages and **4** blank pages.

1 Table 1.1 contains a list of chemicals that are useful to humans.

Complete Table 1.1 by stating **one** way in which each chemical is useful.

Table 1.1

chemical	use of the chemical
antibiotic	
fertiliser	
herbicide	
insecticide	
pectinase	

[5]

[Total: 5]

2 Fig. 2.1 shows a section through a blood vessel.

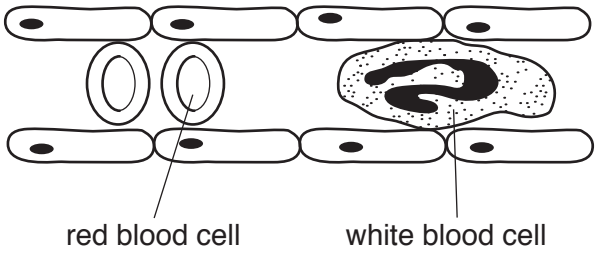

Fig. 2.1

(a) Identify the type of blood vessel shown in Fig. 2.1.

..... [1]

(b) Red blood cells are different to white blood cells.

State **three** ways in which a red blood cell is different to a white blood cell.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(c) **(i)** State the name of the liquid component of blood.

..... [1]

(ii) State **three** substances that are transported in the liquid component of blood.

1 .....

2 .....

3 .....

[3]

[Total: 8]

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3 The boxes on the left contain the names of structures in the body.

The boxes on the right contain the names of processes carried out by the body.

Draw one straight line from each structure to the process in which it is involved.

Draw **six** lines.

structure	**process**
aorta	breathing
cervix	circulation
duodenum	digestion
ribs	excretion
sensory neurone	reflex action
ureter	reproduction

[6]

[Total: 6]

4 The kidneys excrete excess water in urine.

(a) The main component of urine is water.

State **two** other substances that are excreted by healthy kidneys.

1 .....

2 .....
[2]

(b) A scientist investigated the effect of drinking sugar solutions, of different concentrations, on the volume of urine produced.

- 1.5 dm^3 of sugar solution **A** was consumed by a healthy adult.
- Urine was collected at thirty minute intervals for 150 minutes.
- The volume of urine produced every thirty minutes was added to the previous total volume.
- This procedure was repeated with sugar solutions **B** and **C**.

The results are shown in Fig. 4.1.

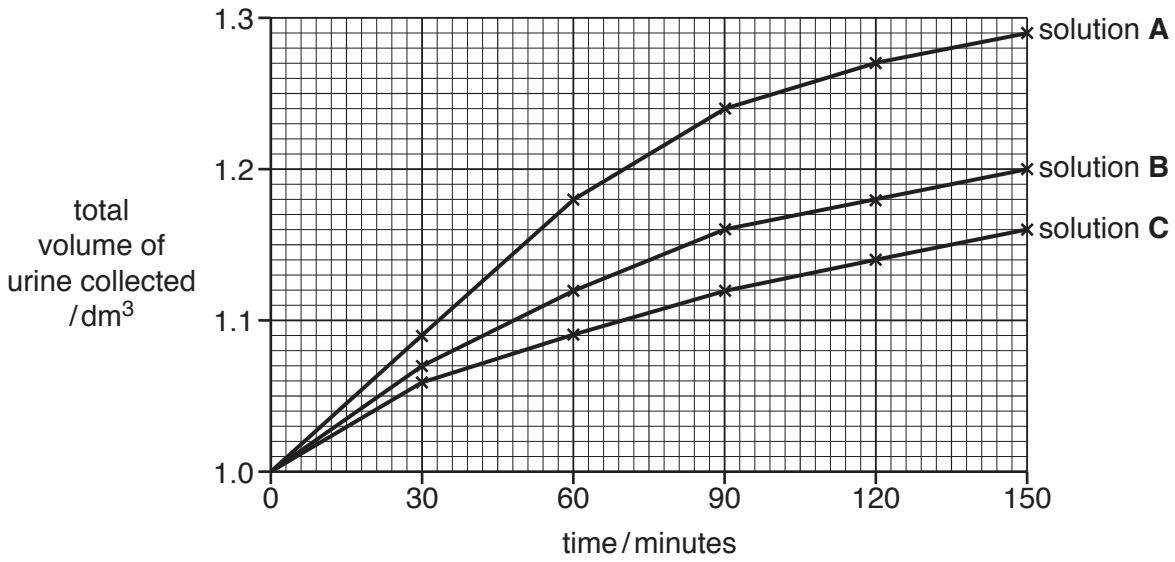


Fig. 4.1

(i) Complete Table 4.1 using the information in Fig. 4.1.

Table 4.1

description of measurement	volume / dm^3
total volume of urine produced 60 minutes after drinking solution **C**	
volume of urine produced between 30 minutes and 60 minutes after drinking solution **B**	
total volume of urine produced 150 minutes after drinking solution **A**	

[3]

(ii) Suggest which of the three solutions, **A**, **B** or **C**, contained the most sugar.

Give a reason for your suggestion.

solution .....

reason .....

.....

.....

[2]

(c) List **two** factors that will affect the volume and concentration of urine produced.

1 .....

2 .....

[2]

(d) The body loses water in the urine.

State **two** other ways in which the body loses water.

1 .....

.....

2 .....

.....

[2]

[Total: 11]

5 Fig. 5.1 shows a diagram of a cell found in leaves.

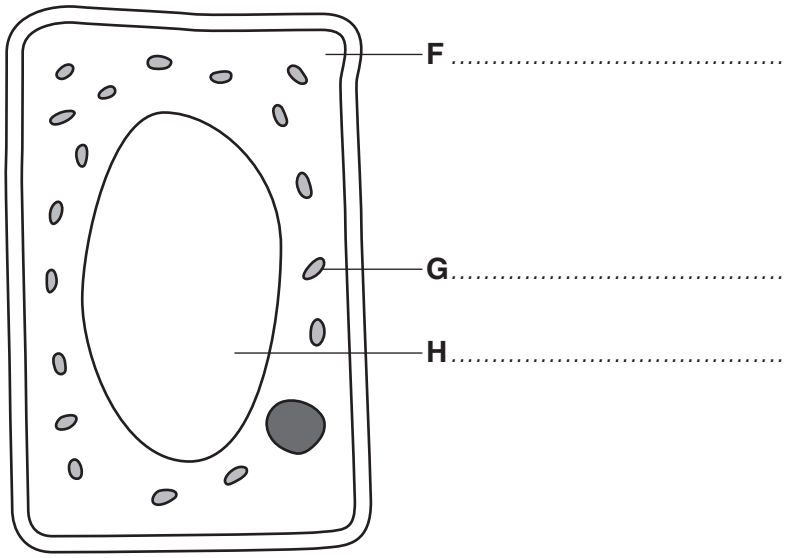


Fig. 5.1

(a) (i) State the names of structures **F**, **G** and **H**.

Write your answers on Fig. 5.1.

[3]

(ii) On Fig. 5.1 draw:

a line labelled **K** to show where the chromosomes are found

a line labelled **L** to show the position of the cell membrane.

[2]

(iii) State the name of this type of plant cell.

..... [1]

(b) The cell in Fig. 5.1 was placed in a concentrated glucose solution.

Fig. 5.2 shows the appearance of the cell after ten minutes in the glucose solution.

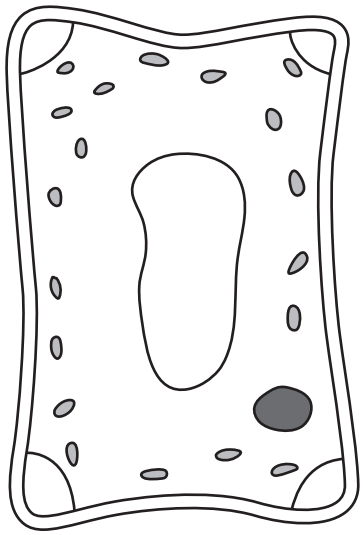


Fig. 5.2

(i) State **two** ways in which the cell has changed.

1 .....

2 .....

[2]

(ii) Water moves into and out of the cell by osmosis.

Osmosis is a form of diffusion.

Describe the ways in which diffusion is different to active transport.

.....

.....

.....

.....

.....

.....

[3]

[Total: 11]

6 This question is about enzymes.

Choose words from the list to complete the sentences.

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

amino acids	**amylase**	**bacteria**	**biological**
fatty acids	**glucose**	**humidity**	**lipase**
living	**protease**	**salivary**	**temperature**

All enzymes are proteins. Proteins are made of ..... .

An enzyme acts as a ..... catalyst.

In order to work rapidly, enzymes need the correct ..... and pH.

An example of an enzyme that works in the acidic conditions in the stomach is

..... .

Acidic conditions will kill many of the ..... present in food.

Salivary ..... stops working in acidic conditions.

Fats are broken down by ..... .

[7]

[Total: 7]

7 **(a)** Some animals produce milk to feed their offspring.

Table 7.1 shows the mass of the substances found in 100 g of milk from two animals.

Table 7.1

substance	mass in 100 g of milk / g	
	human milk	water buffalo milk
protein	1.10	4.50
fat	4.50	8.00
carbohydrate	7.50	4.90
calcium	0.03	2.00
water		

(i) Calculate the mass of water in both the human milk and the water buffalo milk.

Write your answers in Table 7.1.

Space for working.

[2]

(ii) State the name of the substance in Table 7.1 that is present in a higher concentration in human milk than in water buffalo milk.

..... [1]

(iii) State the name of **one** component of a balanced diet that is missing from Table 7.1.

..... [1]

(iv) Producing milk for offspring is a characteristic of a particular group of animals.

State the name of this group of animals.

..... [1]

(b) State how young animals use the substances listed in Table 7.1.

protein .....

.....

fat .....

.....

carbohydrate .....

.....

calcium .....

.....

water .....

.....

[5]

(c) An adult eats a high-fat diet.

State **two** health problems that could be caused by eating a high-fat diet.

1 .....

.....

2 .....

.....

[2]

[Total: 12]

8 **(a)** Define the term *pollination*.

.....

.....

.....

.....[2]

(b) Fig 8.1 shows a flower that reproduces using wind-pollination.

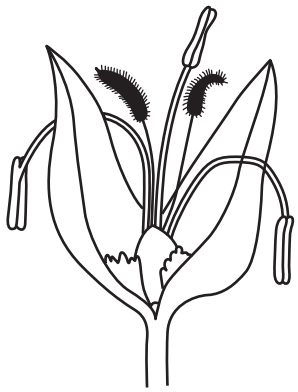


Fig. 8.1

Describe **two** ways in which the flower in Fig. 8.1 is adapted for wind-pollination.

1 .....

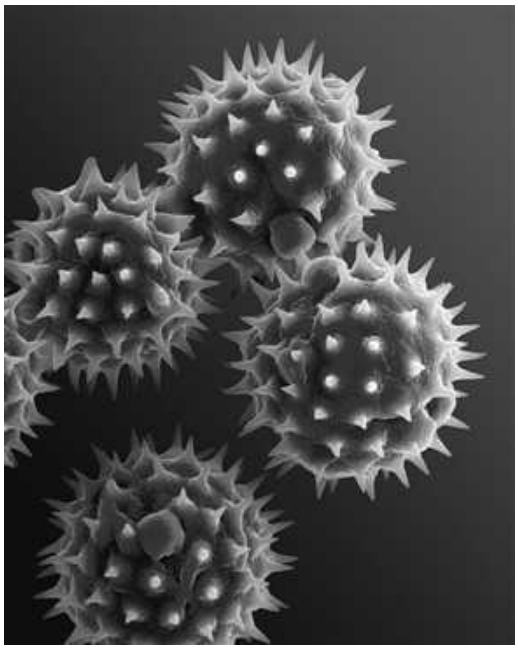
.....

2 .....

.....

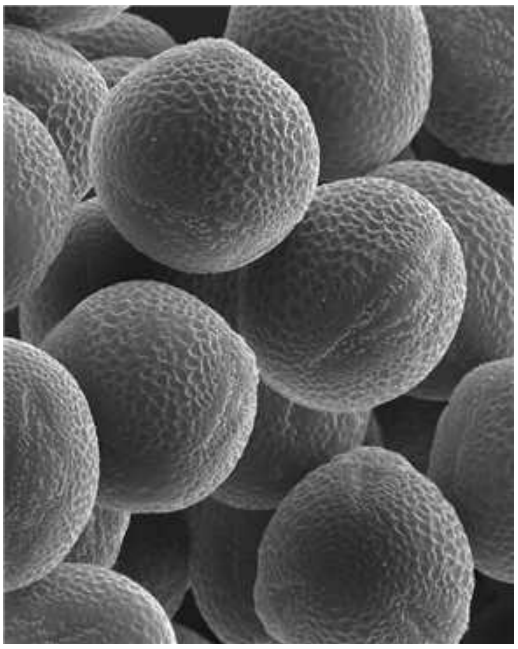
[2]

(c) Fig. 8.2 shows two photomicrographs of pollen.



magnification ×1250

pollen from an insect-pollinated flower



magnification ×2000

pollen from a wind-pollinated flower

Fig. 8.2

Describe, using your knowledge and the information in Fig. 8.2, how pollen from an insect-pollinated flower is different to pollen from a wind-pollinated flower.

.....

.....

.....

.....

.....

..... [3]

(d) Sexual reproduction in plants results in seeds being formed.

State **three** conditions needed for the germination of seeds.

1.....

2 .....

3 .....

[3]

[Total: 10]

9 Some insects can reproduce by sexual reproduction **and** asexual reproduction. In both types of reproduction chromosomes are passed from the parent or parents, to the offspring.

Fig. 9.1 shows a drawing of a parent insect and seven of her offspring: **M**, **N**, **P**, **R**, **S**, **T** and **U**.

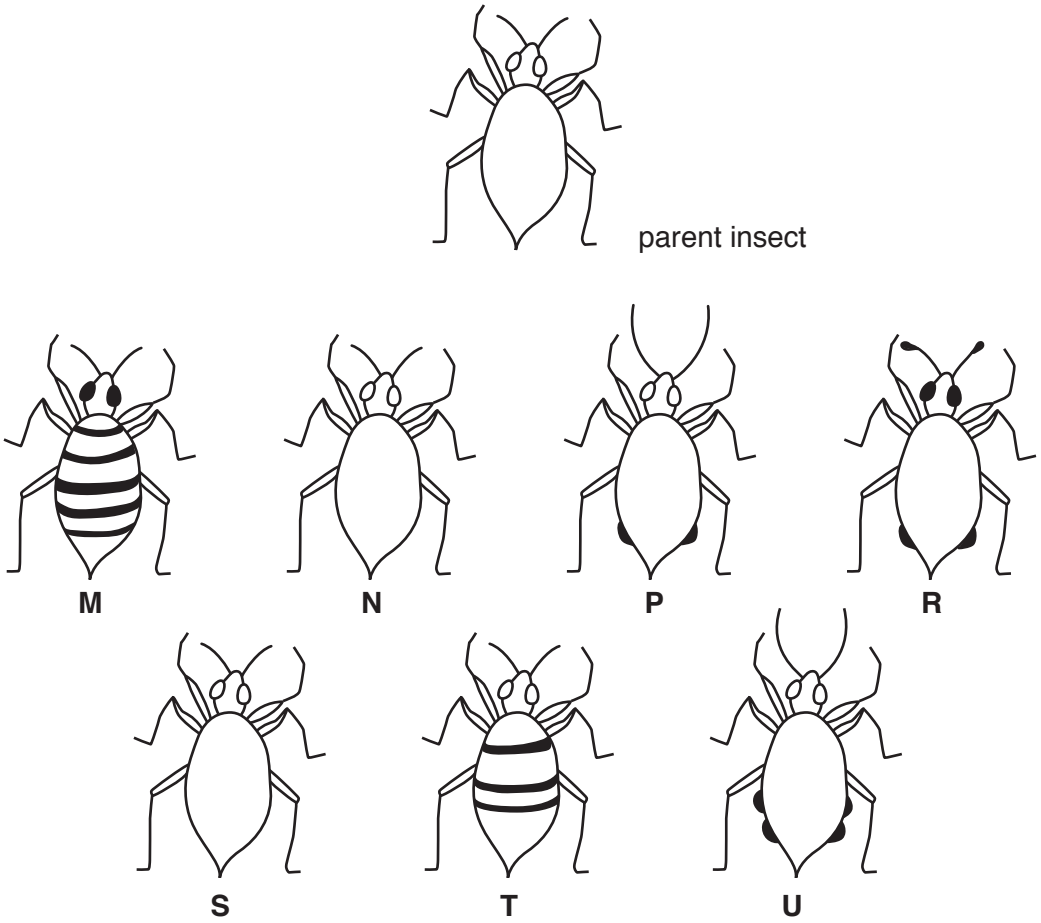


Fig. 9.1

(a) (i) Two of the offspring were produced by asexual reproduction.

Suggest the letters representing these **two** offspring.

1 .....

2 .....

[1]

(ii) Insect **R** was produced by sexual reproduction.

Use the information from the diagram to support this statement.

.....

.....

..... [1]

(iii) State the term that is defined as the observable features of an organism.

..... [1]

(b) Fig. 9.2 shows a group of male students. They are all the same age.

Fig. 9.2

(i) The students in Fig. 9.2 show continuous variation in some of their characteristics.

State **three** characteristics in which these students show continuous variation.

1 .....

2 .....

3 .....

[3]

(ii) State **one** example of discontinuous variation.

.....[1]

[Total: 7]

10 Fig. 10.1 shows part of the water cycle.

The letters represent processes that take place in the water cycle.

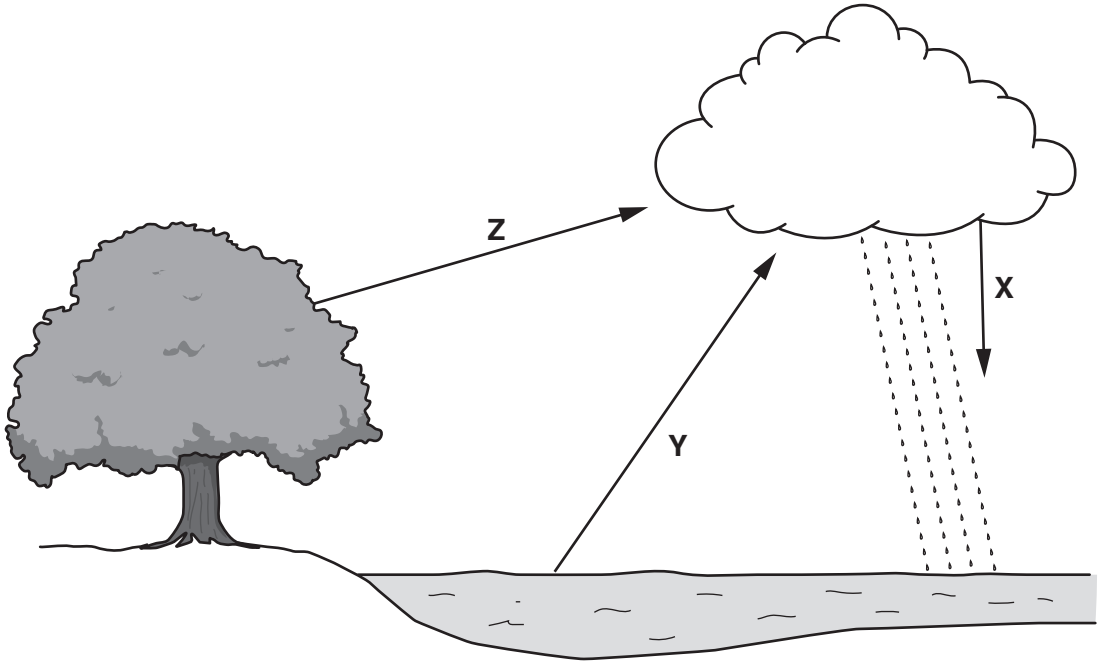


Fig. 10.1

Complete Table 10.1 by stating the names of processes **X**, **Y** and **Z** in Fig. 10.1.

Table 10.1

letter	name of the process
X	
Y	
Z	

[3]

[Total: 3]

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