Cambridge IGCSE

Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CANDIDATE NAME

CENTRE NUMBER

CANDIDATE NUMBER

4238575278

BIOLOGY **0610/32**

Paper 3 Theory (Core) **May/June 2019**

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 regulated 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.

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1 **(a)** Table 1.1 shows some of the structures and parts of the alimentary canal and associated organs.

Complete Table 1.1 by identifying the five missing structures and functions.

Table 1.1

structure	function
	where egestion occurs
gall bladder	
	where ingestion occurs
salivary glands	
	where most absorption occurs

[5]

(b) Lipase is involved in the breakdown of fats.

State the **two** products of fat digestion.

1 .....

2 .....

[2]

(c) Enzymes are proteins.

State the chemical elements that enzymes are made from.

..... [2]

[Total: 9]

2 **(a)** Cholera is an example of a transmissible disease.

Define the term *transmissible disease*.

.....

.....

..... [2]

(b) Cholera is transmitted in contaminated water.

State **two** ways water can be treated to prevent the spread of cholera.

1 .....

2 .....
[2]

(c) Table 2.1 shows the number of reported cases of cholera in the world during 2014 and 2015.

Table 2.1

year	2014	2015
number of cases	191 000	172 000

(i) Calculate the percentage decrease in the number of cases of cholera between 2014 and 2015.

Show your working and give your answer to the nearest whole number.

.....%
[2]

(ii) State the name of the type of organism that causes cholera.

..... [1]

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(d) Cholera causes diarrhoea.

(i) Describe what is meant by the term *diarrhoea*.

.....

..... [1]

(ii) Outline the treatment for the symptoms of cholera.

.....

.....

.....

.....

..... [2]

(e) Bacteria are often used in biotechnology.

Complete the sentences using words from the list to explain why bacteria are used.

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

complex	**genetic**	**identical**	**non-identical**
physical	**rapid**	**slow**	**simple**

Bacteria are useful in biotechnology and ..... engineering due to their ..... reproduction rate and their ability to make ..... molecules.

[3]

[Total: 13]

3 **(a)** Fig. 3.1 is a drawing of a cross-section of a root.

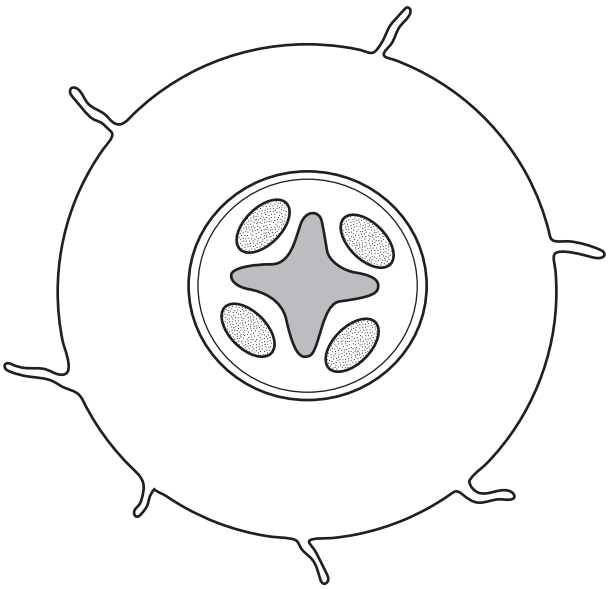


Fig. 3.1

Identify **and** label the structures on Fig. 3.1 using label lines and the labels:

- root hair
- phloem
- xylem.

[3]

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(b) Xylem is an example of a plant tissue.

This list shows examples of tissues, organs and organ systems in humans.

heart **fat (under the skin)**

kidney **lung** **nervous system**

Complete Table 3.1 using the examples from the list.

One has been done for you.

Table 3.1

tissue	organ	organ system
		nervous system

[4]

(c) The list shows some of the structures in a plant.

Write the structures in order of size from smallest to largest.

chloroplast **palisade cell** **phloem tissue**

root **whole plant**

..... smallest

.....

.....

.....

..... largest

[3]

[Total: 10]

4 **(a)** Fig. 4.1 is a diagram of a fetus in the uterus.

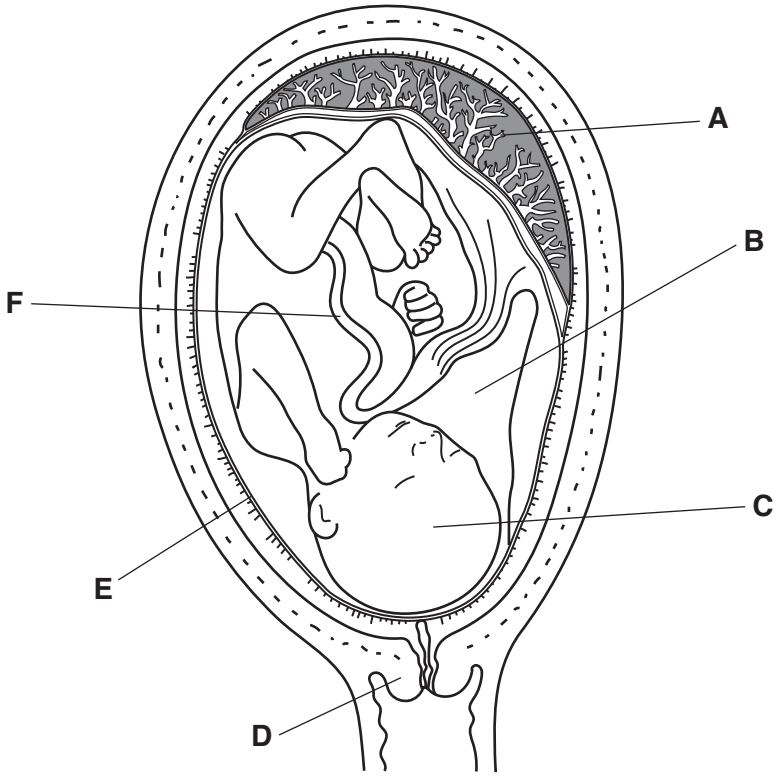


Fig. 4.1

Table 4.1 shows one of the names and the functions of some of the labelled parts shown in Fig. 4.1.

Complete Table 4.1 using the information in Fig. 4.1.

Table 4.1

name of part	letter in Fig. 4.1	function
amniotic sac		contains amniotic fluid
		dilates during birth
		carries materials between mother and fetus

[5]

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(b) Describe the changes that occur in the fertilised egg cell up to the point of implantation.

.....

.....

.....

.....

.....

.....

..... [3]

(c) Compare the growth and development of the fetus in the early stages of pregnancy with its growth and development in the late stages of pregnancy.

.....

.....

.....

..... [2]

[Total: 10]

5 **(a)** Reproduction is a characteristic of all living organisms.

State **two** other characteristics of all living organisms.

1 .....

2 .....
[2]

(b) A specialised cell performs a particular function.

Sperm and egg cells are two types of specialised cell that are involved in reproduction in humans.

State the names of **two other** specialised cells.

1 .....

2 .....
[2]

(c) The term sexual reproduction is in the box on the left.

The boxes on the right show some sentence endings.

Draw straight lines from sexual reproduction to the boxes on the right to make correct sentences.

Sexual reproduction	always involves only one parent.
	involves gametes.
	includes the process of fertilisation.
	only occurs in animals.
	only produces genetically identical offspring.
	results in the formation of a zygote.

[3]

(d) Fig. 5.1 shows some examples of reproduction.

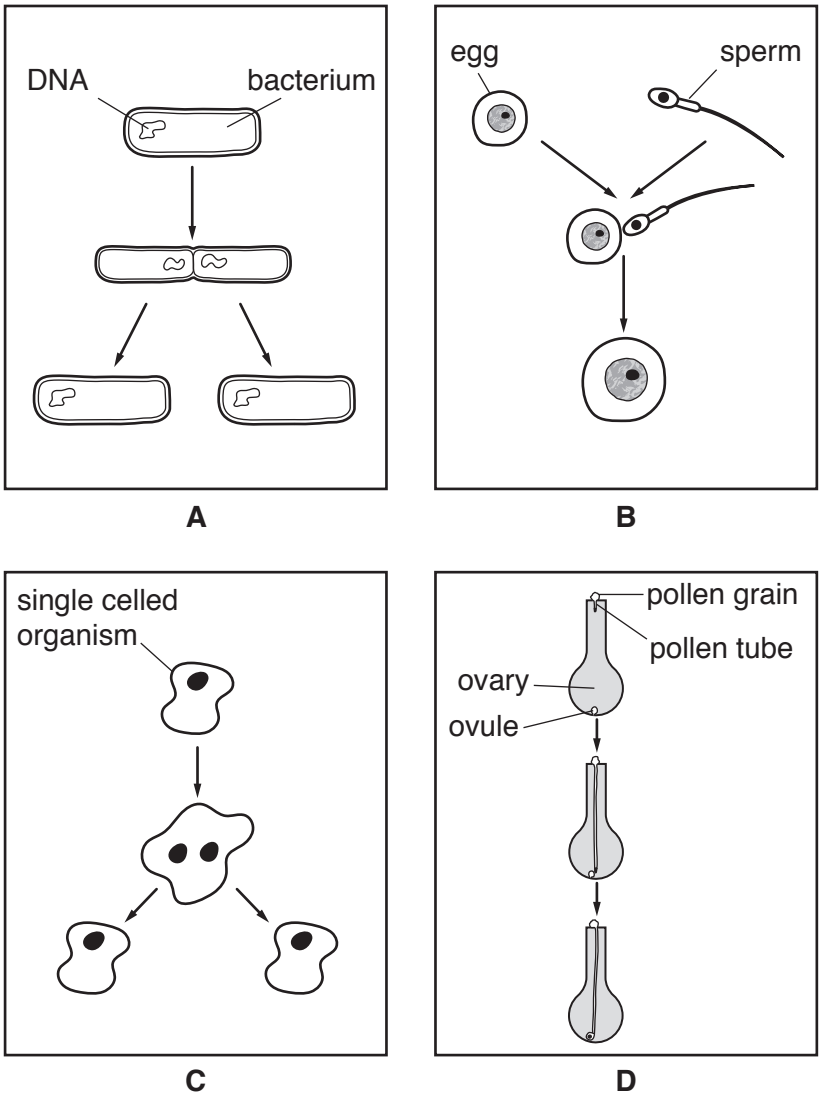


Fig. 5.1

State the letter or letters that identify examples of **asexual** reproduction.

Give a reason for your answer using evidence from Fig. 5.1.

letter(s) .....

reason .....

.....

[3]

[Total: 10]

6 Fig. 6.1 is a graph of the world's human population between the years 1000–2000.

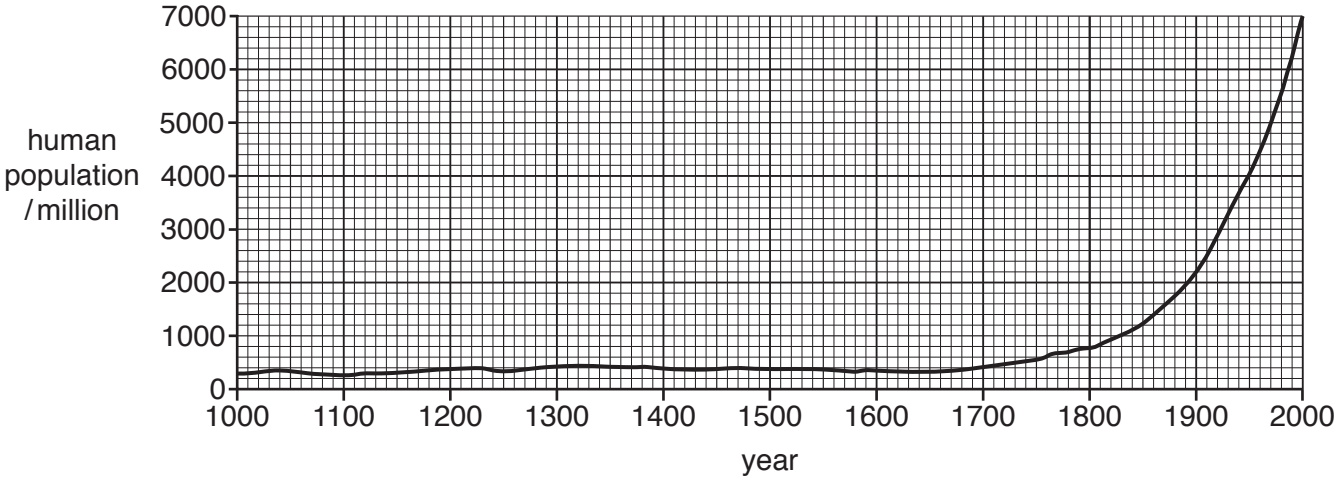


Fig. 6.1

(a) Describe the data shown in Fig. 6.1.

.....

.....

.....

.....

.....

.....

..... [3]

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(b) One explanation for the trend shown in the data after 1900 is the introduction of vaccinations.

Discuss other reasons that explain the trend seen after 1900 in Fig. 6.1.

.....

.....

.....

.....

.....

.....

..... [3]

(c) Populations in individual countries can decrease rapidly.

Suggest **two** reasons why.

1 .....

2 .....
[2]

[Total: 8]

7 **(a)** Fig. 7.1 is a photomicrograph of a cross-section of part of a leaf.

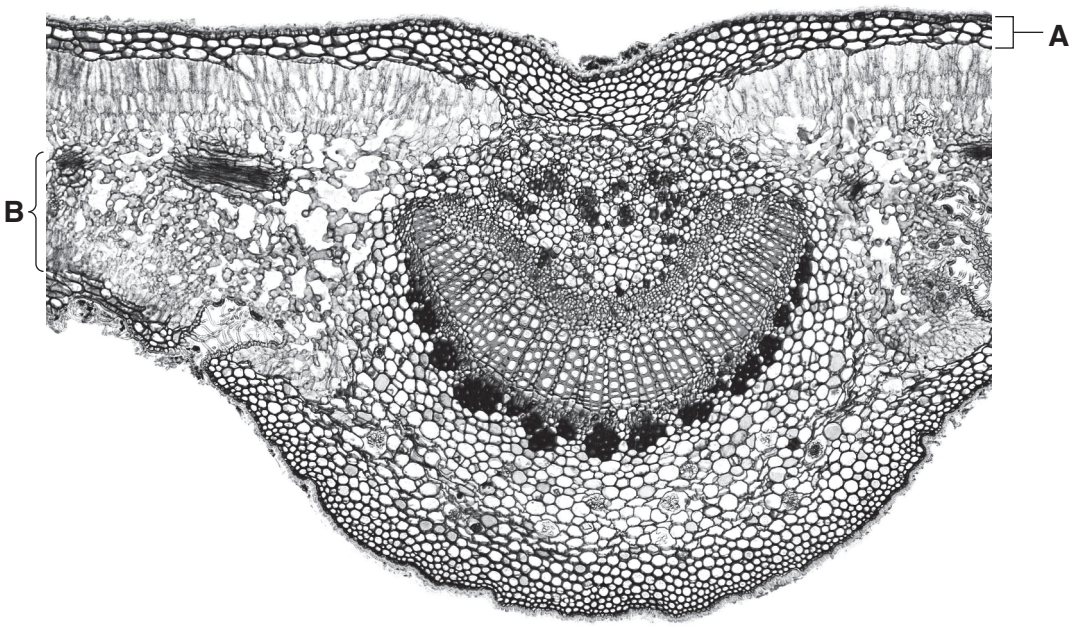


Fig. 7.1

(i) Identify the parts of the leaf labelled **A** and **B** in Fig. 7.1.

A .....

B .....

[2]

(ii) Draw a circle around **one** vascular bundle on Fig. 7.1. [1]

(iii) Draw an arrow to show where an air space is on Fig. 7.1. [1]

(b) State **three** structures present in both animal and plant cells.

1 .....

2 .....

3 .....

[3]

[Total: 7]

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8 **(a)** Modern technology has increased food production.

The boxes on the left show types of modern technology.

The boxes on the right show how modern technology has improved production.

Draw **five** lines to link the type of modern technology with the way in which it has improved food production.

modern technology	**improvement in food production**
agricultural machinery	able to use larger areas of land
chemical fertiliser	improve desired features in crops and livestock
herbicide	kills animal pests that damage crops
insecticide	provides nutrients to increase yield
selective breeding	reduce competition with weeds

[4]

(b) Describe **two** negative impacts to an ecosystem of intensive livestock production.

1 .....

.....

2 .....

.....

[2]

[Total: 6]

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[Turn over

9 **(a)** Three identical potato cylinders were used to investigate water movement in plant cells.

Cranberry juice is a red fruit juice that contains natural sugars.

Three test-tubes were set up as shown in Fig. 9.1 and left for one hour.

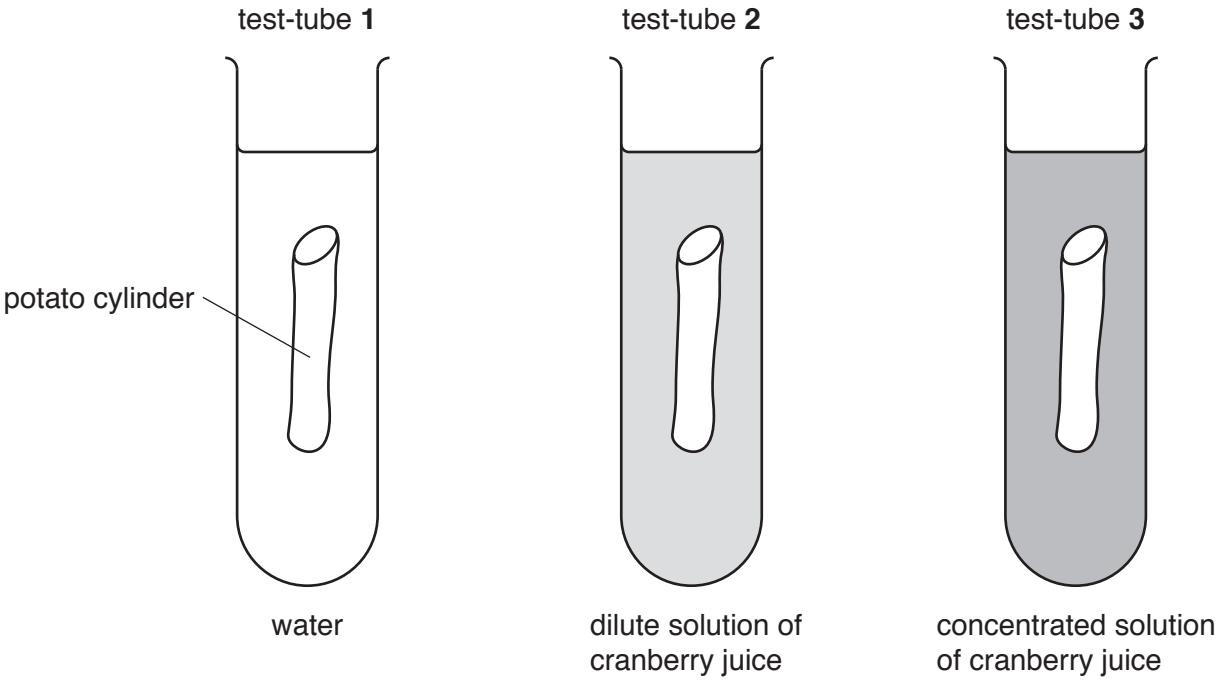


Fig. 9.1

After one hour the potato cylinders were removed from test-tubes **1** to **3**.

The mass of each potato cylinder is recorded in Table 9.1.

Table 9.1

test-tube number	mass of the potato cylinder at the start / g	mass of the potato cylinder after one hour / g
1	25	30
2	25	25
3	25	19

(i) Describe the results for test-tubes **1** and **2**.

test-tube **1** .....

.....

test-tube **2** .....

.....

[2]

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(ii) Calculate the decrease in the mass of the potato cylinder in test-tube **3**.

..... g [1]

(iii) Explain why the potato cylinder lost mass in test-tube **3**.

.....

.....

.....

.....

..... [2]

(b) State the name of **one** mineral ion and give a reason why it is important for plant growth.

ion .....

reason .....

.....

[2]

[Total: 7]

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