Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **February/March 2018**

45 minutes

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

* 0 9 3 5 3 6 8 4 0 8 *

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, glue or correction fluid.
Write your name, Centre number and candidate number on the Answer Sheet in the spaces provided unless this has been done for you.
DO **NOT** WRITE IN ANY BARCODES.

There are **forty** questions on this paper. Answer **all** questions. For each question there are four possible answers **A**, **B**, **C** and **D**.
Choose the **one** you consider correct and record your choice in **soft pencil** on the separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

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 **15** printed pages and **1** blank page.

© UCLES 2018

1 What is a characteristic of all living organisms?

A breathing

B egestion

C excretion

D ingestion

2 What are the characteristics of fish?

	maintain constant body temperature	external ears present	jelly-covered eggs	scales
A	✓	✓	✗	✗
B	✓	✗	✓	✓
C	✗	✓	✗	✗
D	✗	✗	✓	✓

3 The diagram shows part of a flowering plant.



Using the key, identify this plant.

1 three petals ..... go to 2

more than three petals ..... go to 3

2 leaves longer than they are wide ..... **A**

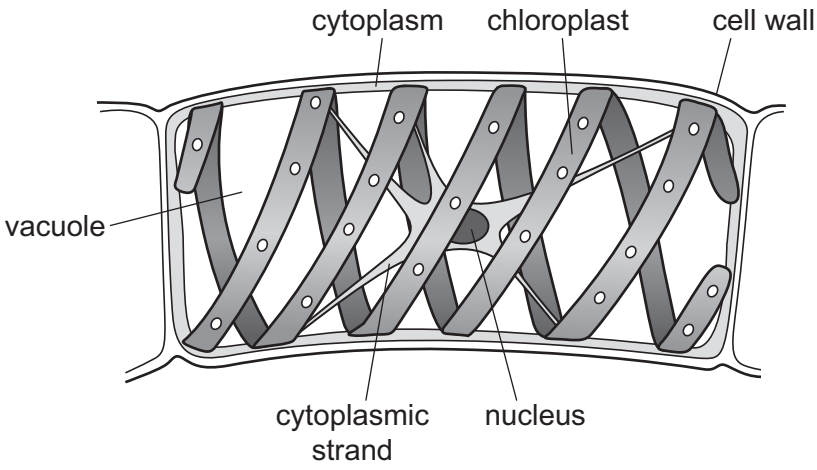
leaves wider than they are long ..... **B**

3 leaves parallel-veined ..... **C**

leaves not parallel-veined ..... **D**

© UCLES 2018

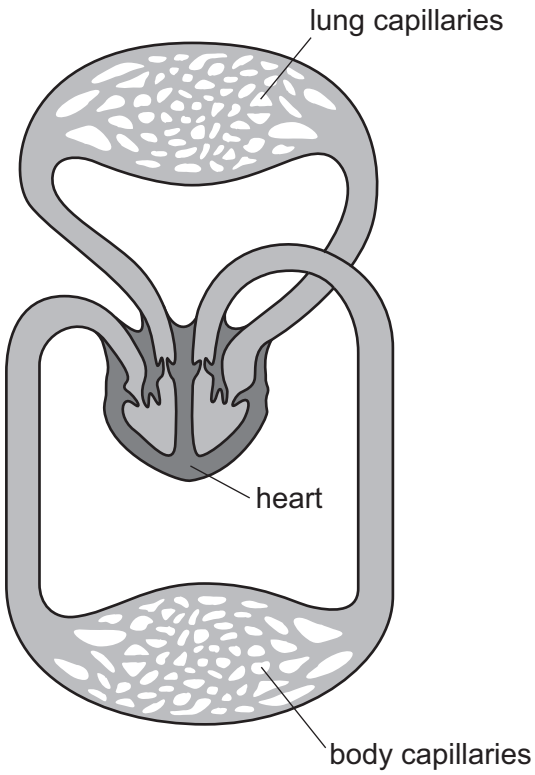
4 The diagram shows a single cell from an organism called *Spirogyra*.



Which features does *Spirogyra* share with plant cells?

	cell wall	chloroplast	cytoplasm	nucleus	vacuole
A	✓	✓	✓	✓	✓
B	✓	✓	✗	✗	✓
C	✓	✗	✓	✓	✗
D	✗	✓	✓	✗	✓

5 Which level of organisation is shown in the diagram?



A organ

B organism

C organ system

D tissue

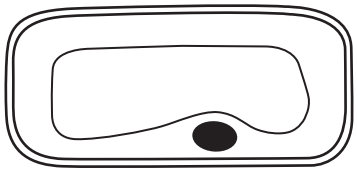
6 An egg measured 6.5 cm in diameter. A student made a drawing of this egg and the diameter was measured as 19.5 cm.

What was the magnification of the drawing?

A ×0.3 **B** ×3.0 **C** ×6.5 **D** ×300

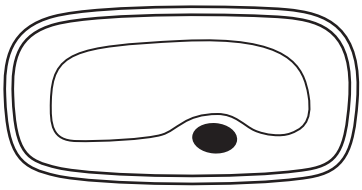
© UCLES 2018

7 The diagram shows a plant cell.

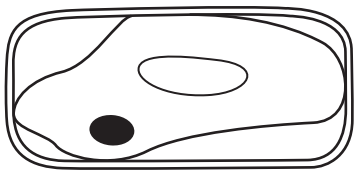


What is the appearance of this cell after it has been placed in pure water for 30 minutes?

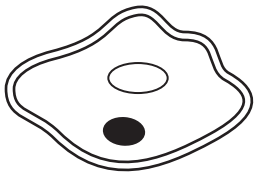
A



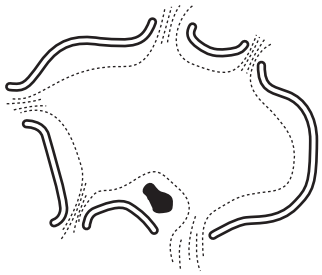
B



C



D



8 When a food substance is tested with iodine solution, which colour shows the presence of starch?

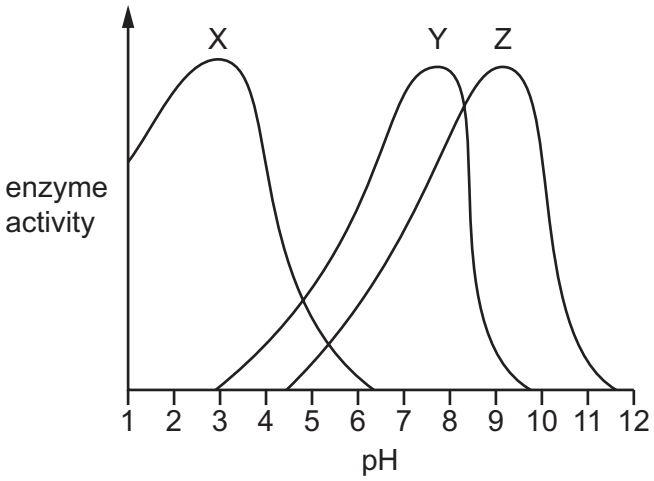
A blue-black

B brown

C orange

D purple

9 The graph shows the activity of three digestive enzymes at differing pH levels.



Which statement is correct?

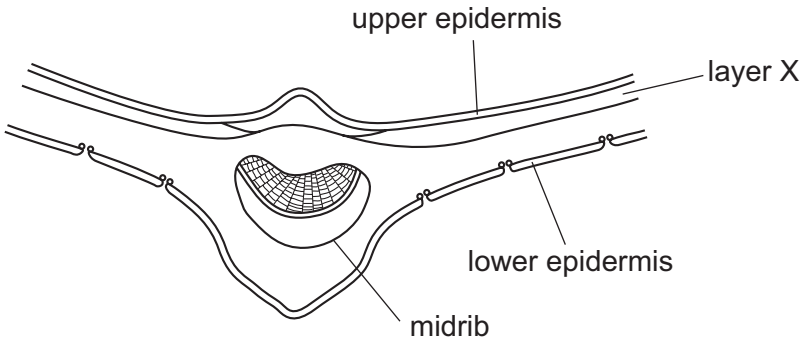
A Enzymes X and Y are both active at pH 7.

B Enzymes X and Z are both active at pH 4.

C Enzymes Y and Z are both active at pH 4.

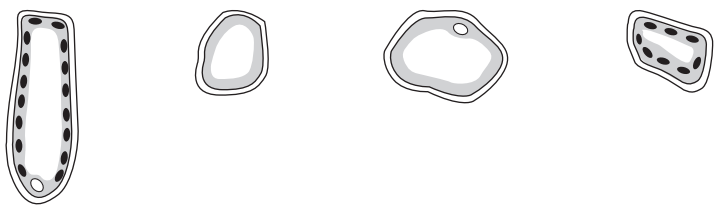
D Enzymes Y and Z are both active at pH 8.

10 The diagram shows a cross-section of part of a leaf.



Which type of cell is found in layer X?

A **B** **C** **D**



11 Which molecule contains magnesium?

A chlorophyll

B fat

C glucose

D starch

12 In which part of the body of a mammal does mechanical digestion occur?

A gall bladder

B liver

C mouth

D pancreas

13 In which order does water pass through these tissues in a plant?

A mesophyll → xylem → root cortex

B root cortex → mesophyll → xylem

C root cortex → xylem → mesophyll

D xylem → mesophyll → root cortex

14 Which part of the blood contains haemoglobin?

A plasma

B platelets

C red blood cells

D white blood cells

15 The body has defences to protect itself from diseases.

What is a mechanical barrier to diseases?

A hairs in the nose

B plasma

C stomach acid

D white blood cells

16 Compared with inspired air, which description of expired air is correct?

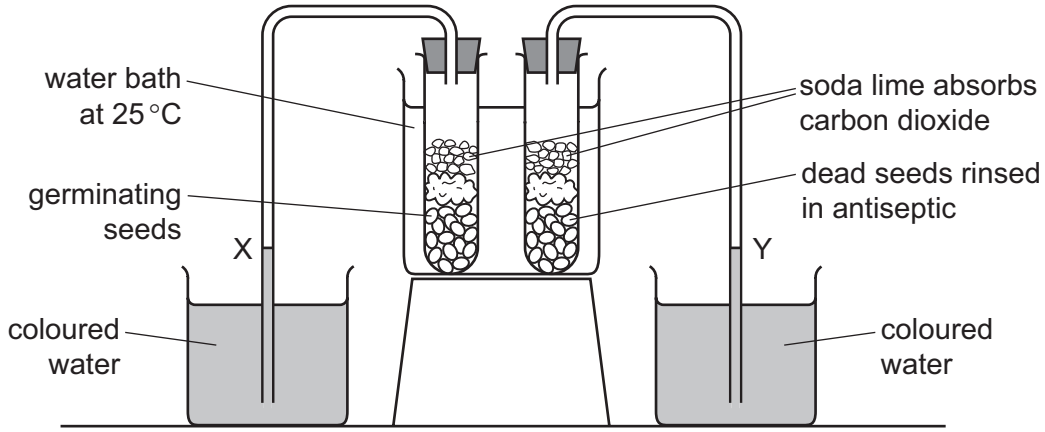
A It has less oxygen and less carbon dioxide.

B It has less oxygen and more carbon dioxide.

C It has more oxygen and less carbon dioxide.

D It has more oxygen and more carbon dioxide.

17 An experiment is set up to investigate the uptake of oxygen by germinating seeds.



What happens to the levels of the coloured water at X and Y?

	X	Y
A	falls	rises
B	falls	unchanged
C	rises	falls
D	rises	unchanged

18 Which organ regulates the amount of water in a mammal's body?

A kidney

B liver

C lungs

D skin

© UCLES 2018

19 A boy accidentally touches a very hot object and immediately takes his hand away.

In this reflex action, what is the effector?

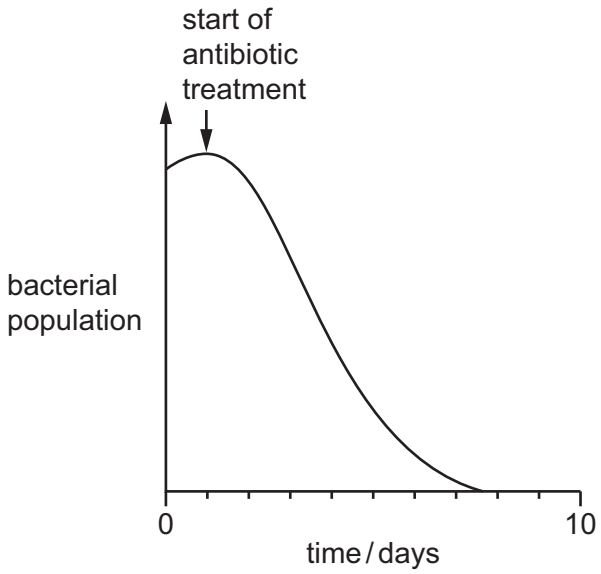
A a heat receptor in his hand

B a motor neurone

C a muscle in his arm

D the spinal cord

20 The graph shows the effect of an antibiotic treatment on bacterial populations in the blood.



Which conclusion can be drawn from the graph?

A Antibiotics are effective against viral and bacterial infections.

B Antibiotics cause meiosis in bacteria.

C Antibiotics take ten days to kill all bacteria.

D Before the start of antibiotic treatment the bacterial population was rising.

21 Drinking alcohol before driving a car is dangerous.

Which statement correctly explains why drinking alcohol and driving is dangerous?

A Alcohol increases reaction time.

B Alcohol can cause liver damage.

C Alcohol is a drug.

D Alcohol is addictive.

© UCLES 2018

[Turn over

22 Which statement about sexual reproduction is correct?

A It is a process that involves the fusion of two nuclei.

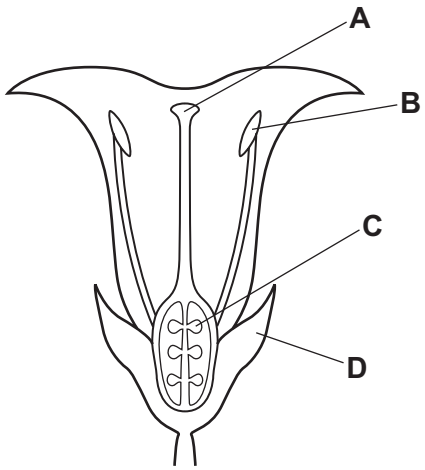
B It always produces genetically identical offspring.

C No zygote is formed.

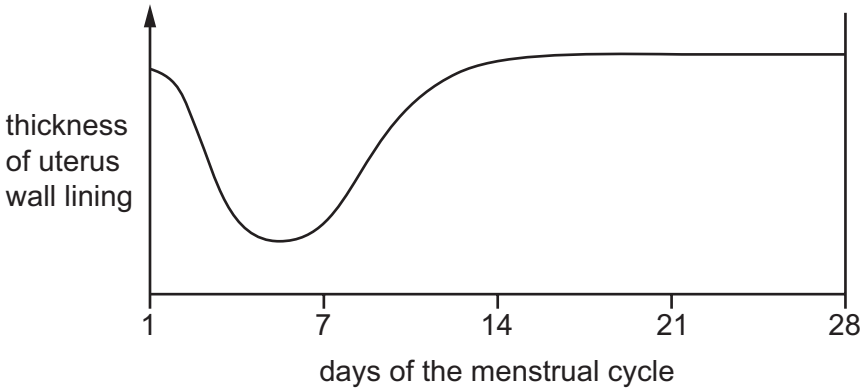
D There is no fertilisation.

23 The diagram shows a cross-section of a flower.

Where does fertilisation take place?



24 The graph shows changes in the thickness of the lining of the uterus wall during a menstrual cycle.



Which day is the last day of menstruation?

A 4 **B** 8 **C** 16 **D** 20

© UCLES 2018

25 The table shows the percentage of pregnancies in four groups of women. Each group used a different method of contraception.

method of contraception	percentage of pregnancies
the contraceptive pill	1
monitoring body temperature	14
diaphragm	7
male sterilisation (vasectomy)	0

Which contraceptive method was the **least** effective?

A barrier

B chemical

C natural

D surgical

26 Which sex chromosomes in the egg and the sperm will produce a male child?

	sex chromosome in egg	sex chromosome in sperm
A	X	X
B	X	Y
C	Y	X
D	Y	Y

27 Cell division has the following functions.

1 asexual reproduction

2 growth

3 production of gametes

4 repair of damaged tissue

5 replacement of cells

Which functions are specific to mitosis?

A 1, 2, 3 and 4

B 1, 2, 4 and 5

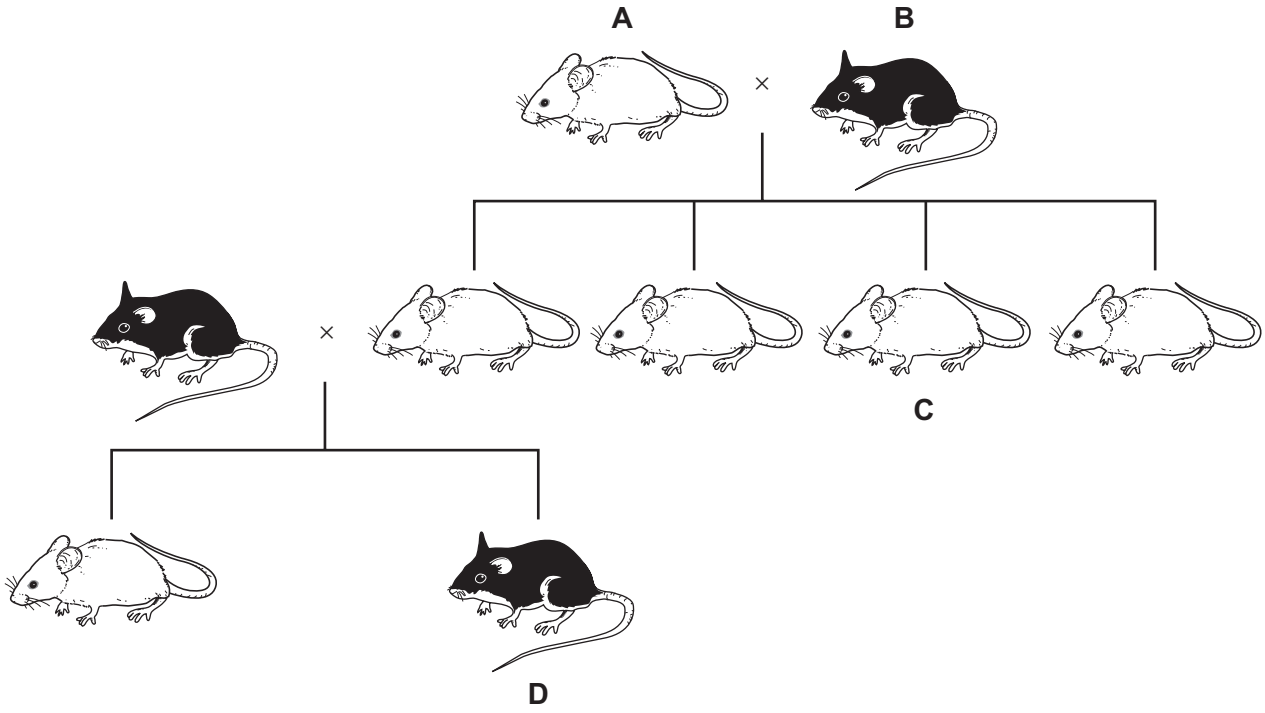
C 2, 3 and 4 only

D 3, 4 and 5 only

© UCLES 2018

28 The chart shows the inheritance of fur colour in a small mammal.

If the allele for white fur is dominant, which animal **must** be heterozygous for the gene controlling fur colour?



29 Four phenotypes of a group of people were studied.

Which phenotype will show discontinuous variation?

A blood group

B foot size

C height

D weight

30 Which statement about selective breeding is correct?

A It does not involve humans.

B It involves a struggle for survival.

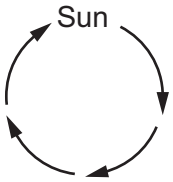
C It always involves one parent.

D It involves parents that possess desirable features.

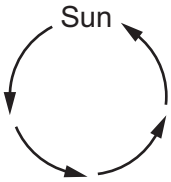
© UCLES 2018

31 Which diagram shows how energy flows through an ecosystem?

A



B



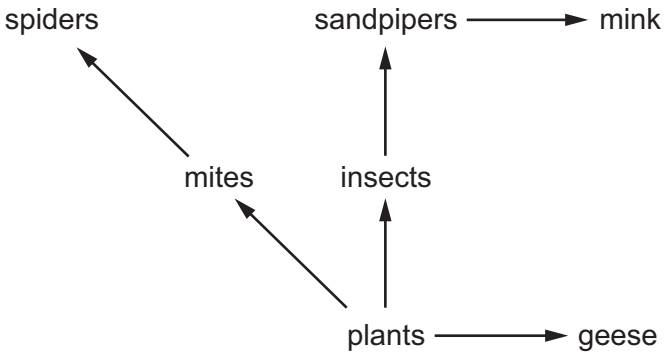
C



D



32 The diagram shows part of a food web.



Which members of the food web are examples of producers, herbivores and carnivores?

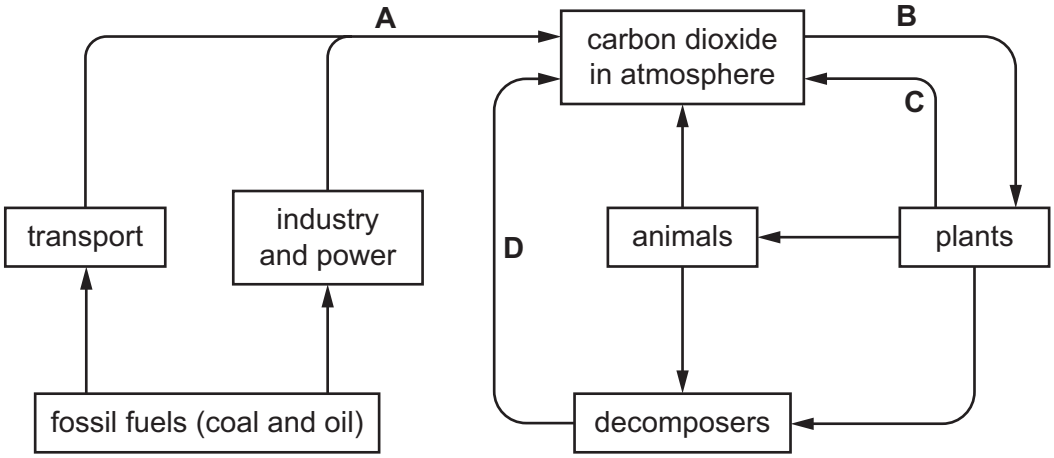
	producers	herbivores	carnivores
A	insects	sandpipers	mink
B	geese	mites	sandpipers
C	plants	geese	spiders
D	plants	sandpipers	insects

© UCLES 2018

[Turn over

33 The diagram shows part of the carbon cycle.

Which process reduces the carbon dioxide content of the atmosphere?



34 Which factor will cause a decrease in population size?

A decreased food supply

B decreased predation

C decreased disease

D decreased death rate

35 Some of the characteristics of bacteria are listed.

1 can make complex molecules

2 can reproduce quickly

3 have cytoplasm

4 may cause diseases

Which characteristics make bacteria useful in biotechnology and genetic engineering?

A 1, 2, 3 and 4 **B** 1 and 2 only **C** 2 and 3 only **D** 3 and 4 only

36 What is a product of anaerobic respiration in yeast?

A biological washing powders

B ethanol

C fruit juice

D human insulin

© UCLES 2018

37 Which statement about genetic engineering is correct?

A It involves choosing which individual organisms are used for breeding.

B It is always done using genes from the same species.

C It produces a new combination of genes.

D It produces exact copies of individual organisms.

38 Deforestation has undesirable effects on the environment.

Which effect makes the greatest contribution to global warming?

A extinction of species

B increased carbon dioxide

C increased flooding

D loss of soil by erosion

39 Methane is a gas that contributes to the greenhouse effect.

Which human activity is a source of methane?

A deforestation

B growing rice

C using fertilisers

D using herbicides

40 Which stage in the treatment of sewage removes large floating objects, such as plastic bags?

A aeration

B discharge

C screening

D sedimentation

© UCLES 2018

BLANK PAGE

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced online in the Cambridge International Examinations Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cie.org.uk after the live examination series.

Cambridge International Examinations is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.