Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/11**

Paper 1 Multiple Choice **May/June 2015**

45 minutes

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

8833948694

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.

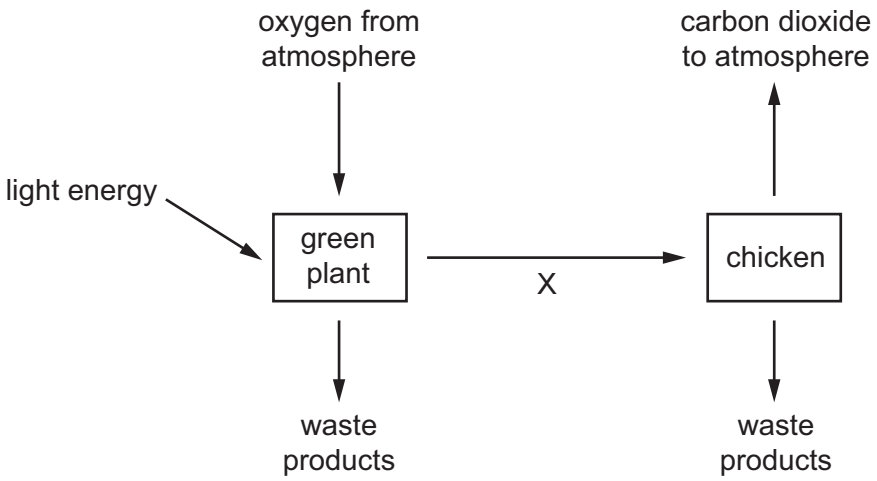
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

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 **16** printed pages.

© UCLES 2015

1 The diagram illustrates some of the processes carried out by living organisms.



Which characteristic of living organisms is represented by arrow X?

A excretion

B nutrition

C respiration

D sensitivity

2 What is a correct way of naming a species, according to the binomial system?

A *Homo sapiens*

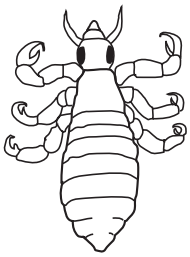
B *Homo Sapiens*

C human being

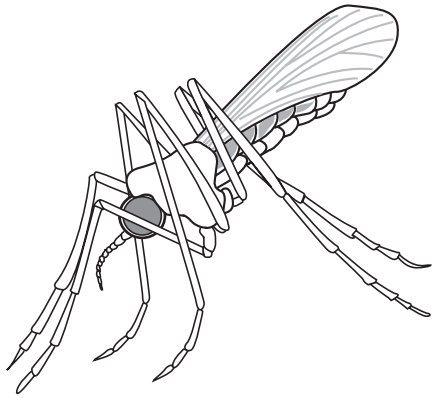
D sapiens

© UCLES 2015

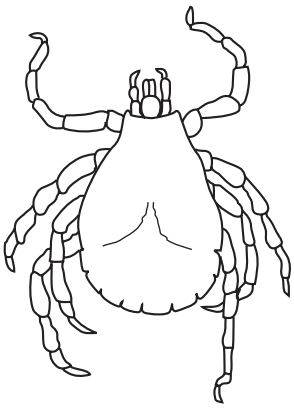
3 The diagram shows four arthropods.



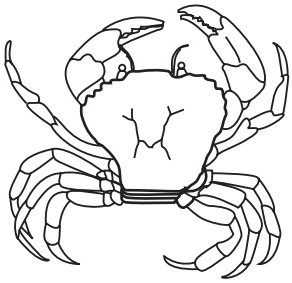
Pediculus ×20



Anopheles ×10



Dermacentor ×7



Carcinus ×0.5

How many of these arthropods are insects?

A 1 **B** 2 **C** 3 **D** 4

4 The key can be used to distinguish between four different chemical substances.

Use the key to identify which substance could be a protein.

1 contains the element carbon ..... go to 2

does not contain carbon ..... **A**

2 contains the element nitrogen ..... **B**

does not contain nitrogen ..... go to 3

3 gives a positive result with Benedict's test ..... **C**

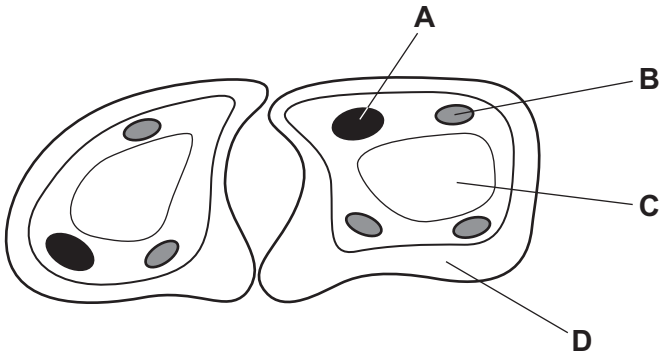
gives a negative result with Benedict's test ..... **D**

© UCLES 2015

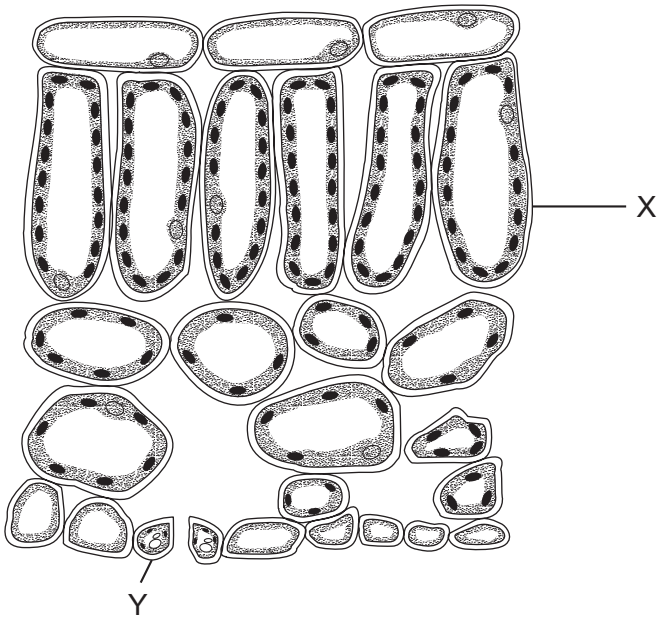
[Turn over

5 The diagram shows two guard cells from a leaf.

Which labelled part would also be found in liver cells?



6 The diagram shows part of a leaf in cross-section.



Structures X and Y are both part of the same

A cell.

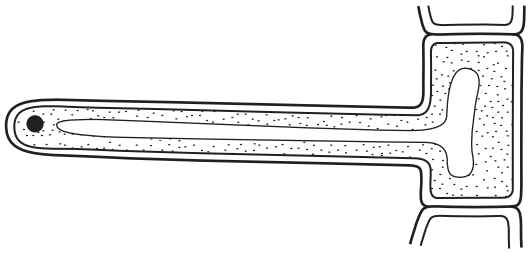
B organ.

C tissue.

D vessel.

© UCLES 2015

7 The diagram shows a plant cell.



Which features show that it is a plant cell?

A It has a cell wall and a vacuole.

B It has a nucleus and cytoplasm.

C It has a nucleus but no chloroplasts.

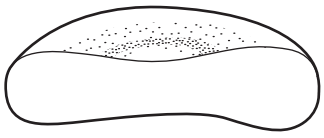
D It has chloroplasts but no vacuole.

8 In a section through a plant, a student found a group of long, microscopic structures. The structures lacked end walls, cytoplasm and nuclei.

Which identification and reason best matches the student's observations?

	identification	reason
A	root hair cells	they do not contain a nucleus when mature
B	root hair cells	they do not contain cytoplasm to absorb water
C	xylem vessels	they can support the plant better without cytoplasm
D	xylem vessels	they need to be hollow to carry water efficiently

9 The diagram shows a specialised cell cut in half.



What does this diagram indicate about the structure of this cell?

A The cell has a cell wall.

B The cell is concave on each side.

C The cell is long and thin.

D The cell is red and carries oxygen.

© UCLES 2015

10 How do carbon dioxide and oxygen move in and out of a mesophyll cell?

A active transport

B diffusion

C respiration

D transpiration

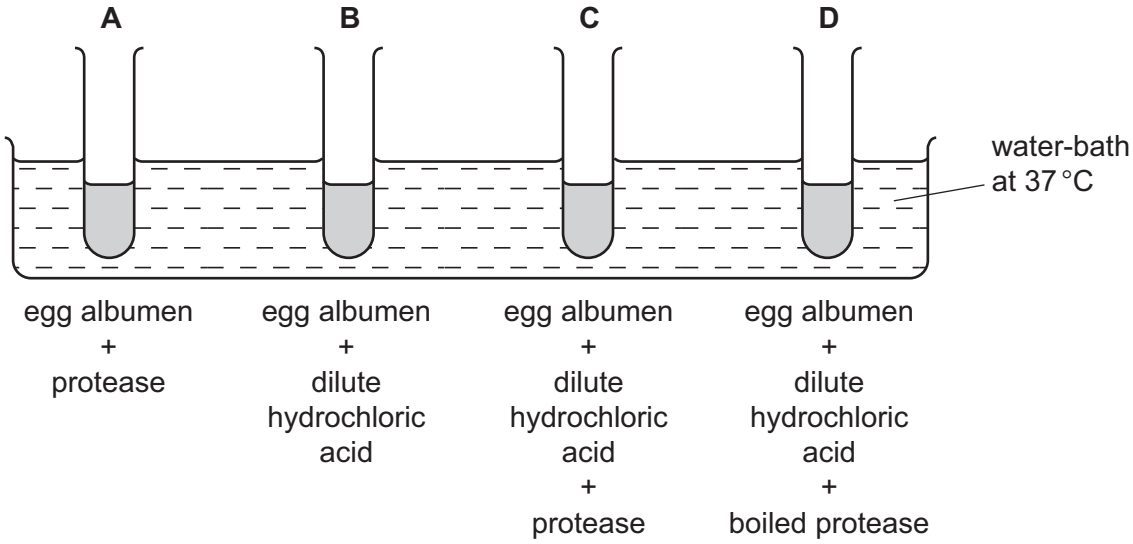
11 During osmosis, which molecules move and through which type of membrane?

	molecules moving	type of membrane
A	oxygen	partially permeable
B	oxygen	permeable
C	water	partially permeable
D	water	permeable

12 The diagram shows an experiment on the digestion of the protein in egg albumen by protease.

The protease was taken from a human stomach.

In which test-tube will the protein be digested most quickly?



13 Which effect does a gradual decrease in pH from 13 to 1 have on the action of amylase?

A slows it down only

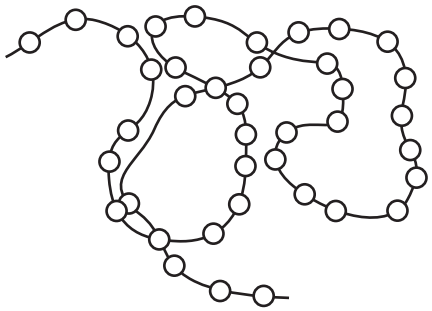
B slows it down then speeds it up

C speeds it up only

D speeds it up then slows it down

© UCLES 2015

14 The diagram represents a protein molecule.



What do the small circles represent?

A amino acids

B fatty acids

C glycerol

D simple sugars

15 Poor nutrition can lead to a condition called rickets in which bones fail to develop properly.

The table shows some minerals and vitamins present in four foods.

Which food would be best for a child who has rickets?

	calcium	iron	vitamin C	vitamin D
A	✓	✗	✓	✗
B	✓	✗	✗	✓
C	✗	✓	✓	✗
D	✗	✓	✗	✓

key

✓ = substance present

✗ = substance absent

16 Which components make up most of the dry mass of a balanced diet?

A calcium compounds, carbohydrates and fats

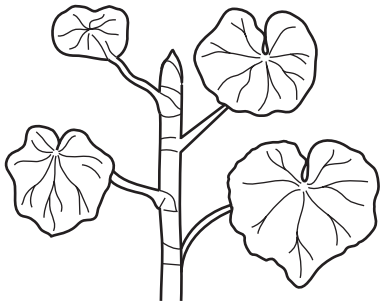
B carbohydrates, fats and proteins

C fats, proteins and vitamins

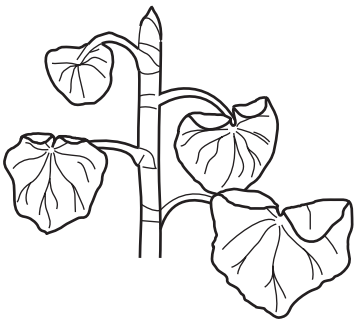
D proteins, vitamins and calcium compounds

© UCLES 2015

17 The diagram shows a plant shoot and the same shoot six hours later.



plant shoot



same shoot six hours later

Which change in environmental conditions could cause this change in the shoot?

A a decrease in available water

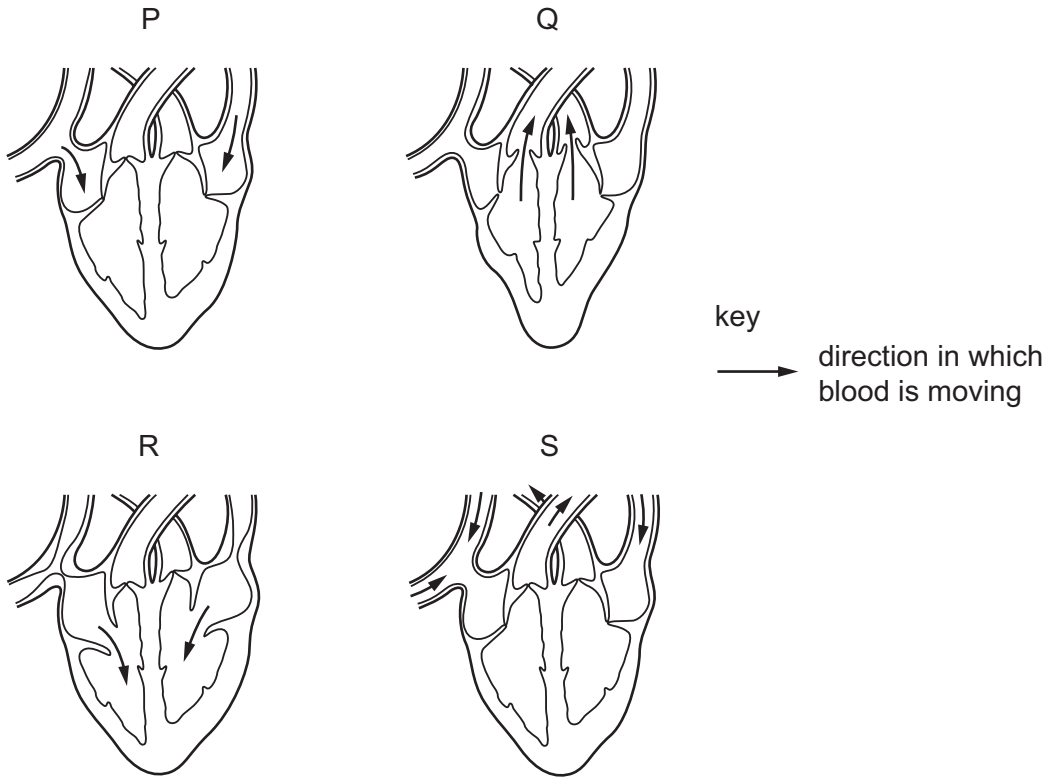
B a decrease in light intensity

C a decrease in wind speed

D an increase in humidity

© UCLES 2015

18 The diagrams show four different stages in **one** heart beat.



What is the correct order for the stages after stage P?

A Q → R → S

B R → Q → S

C R → S → Q

D S → R → Q

19 Why does chewing food speed up digestion?

A Bacteria in the food are killed.

B Food is mixed with protease.

C The surface area of the food is increased.

D The taste of food is improved.

20 Which process in humans does **not** use energy released from respiration?

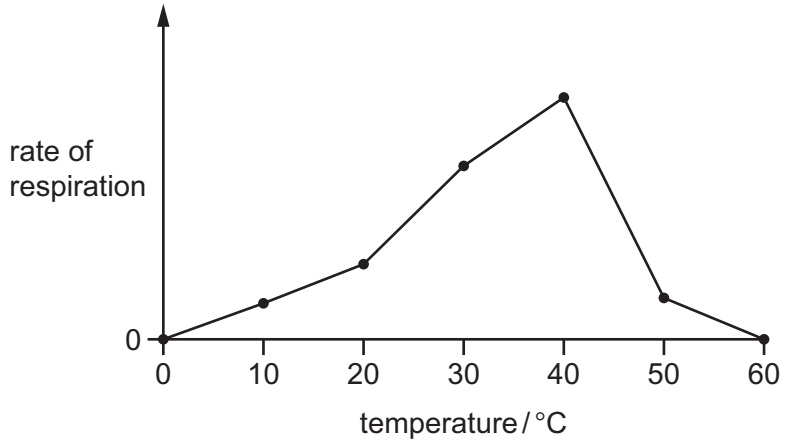
A cell division

B diffusion of oxygen

C muscle contraction

D protein synthesis

21 The graph shows the results of an experiment to investigate the rate of respiration of an organism at different temperatures.



What explains the difference between the rate of respiration at 50 °C and that at 30 °C?

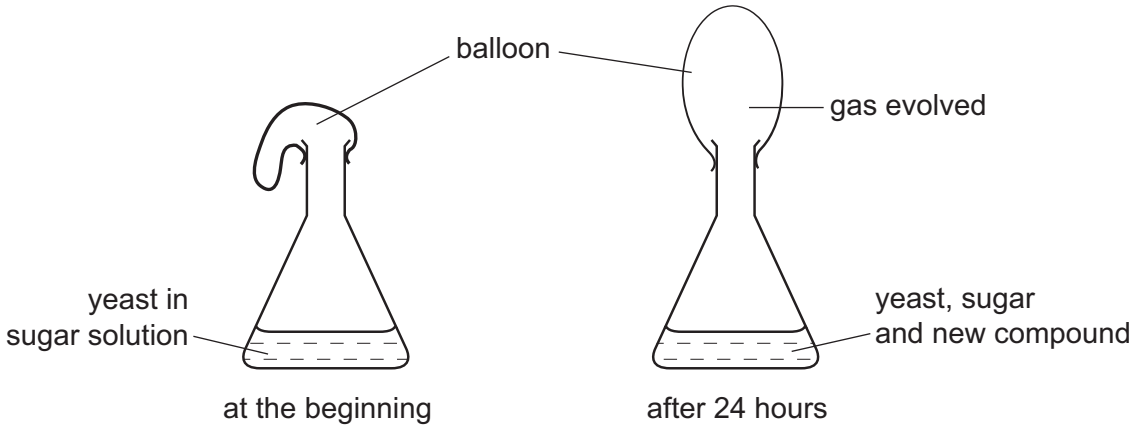
A enzymes working faster at 50 °C

B enzymes working more slowly at 50 °C

C less oxygen available at 50 °C

D more oxygen available at 50 °C

22 The diagram shows an experiment to investigate the respiration of yeast.



Which gas is evolved and which new compound is present after 24 hours?

	gas evolved	new compound
A	carbon dioxide	ethanol (alcohol)
B	carbon dioxide	lactic acid
C	oxygen	ethanol (alcohol)
D	oxygen	lactic acid

© UCLES 2015

23 Which function does **not** occur in the kidneys?

A breakdown of alcohol

B removal of excess salts from the blood

C removal of excess water from the blood

D removal of urea from the blood

24 What is urea formed from?

A amino acids

B fatty acids

C glucose

D glycerol

25 What is **not** an effect of consumption of alcohol?

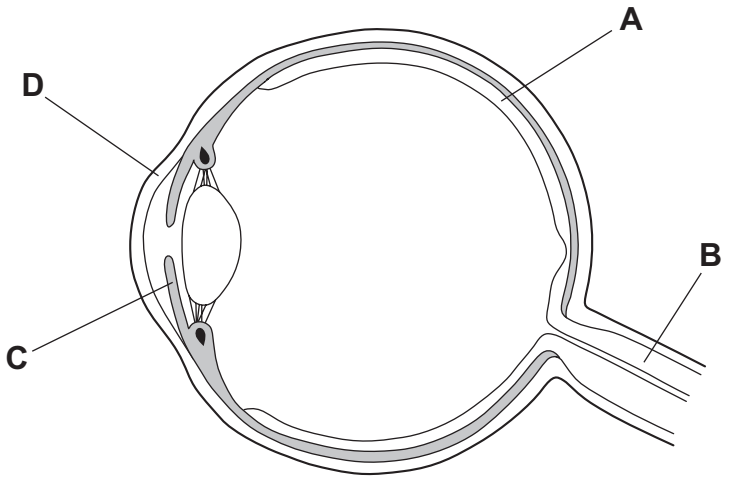
A liver damage

B loss of muscle coordination

C poor self control

D stimulation of the nervous system

26 Which labelled part of the eye contains muscle?



27 Which method of birth control is based on knowing the stage of a woman's menstrual cycle?

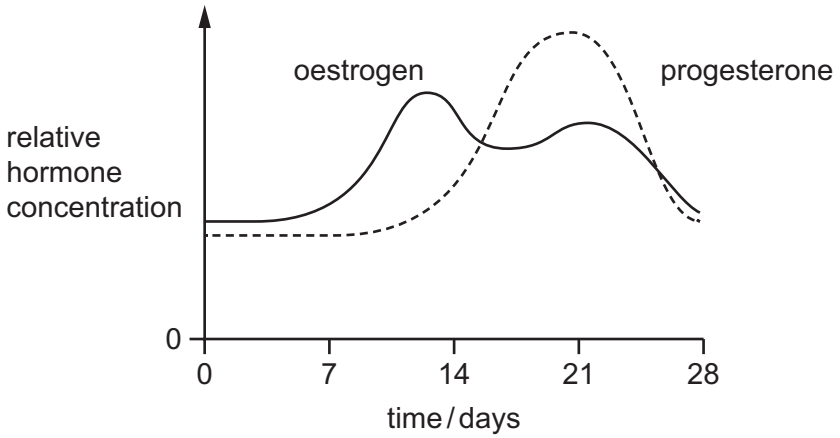
A condom

B contraceptive pill

C diaphragm

D rhythm method

28 The diagram shows some changes which take place during a woman's menstrual cycle.



Assuming ovulation occurs on day 14, what is occurring at the time of ovulation?

A a fall in the levels of oestrogen and progesterone

B a fall in the level of progesterone only

C a rise in the level of oestrogen

D a rise in the level of progesterone and fall in the level of oestrogen

29 Development is defined as an increase in

A complexity.

B dry mass.

C number of cells.

D size.

30 In addition to a suitable temperature, what else is always necessary for seed germination?

A carbon dioxide and sunlight

B mineral ions

C sunlight and water

D water and oxygen

31 A genetic cross between two organisms may be shown as Gg × Gg.

What does g represent?

A a dominant allele

B a dominant chromosome

C a recessive allele

D a recessive chromosome

© UCLES 2015

32 Some fruit flies have orange eyes and others have red eyes.

If two orange-eyed fruit flies are crossed, their offspring always have orange eyes.

If two red-eyed fruit flies are crossed, their offspring sometimes include both orange-eyed and red-eyed flies.

What can be concluded from these observations?

A Crossing an orange-eyed fly with a red-eyed fly will produce a 1 : 1 ratio in the offspring.

B The allele for orange eyes is dominant.

C The allele for red eyes is dominant.

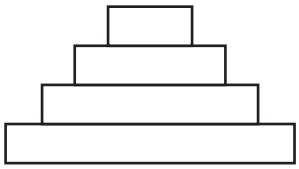
D We could determine which allele is dominant only by doing a cross that produces a 3 : 1 ratio.

33 What can be continuously recycled in ecosystems?

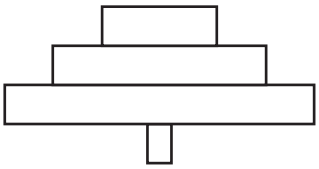
	carbon	energy	water
A	✓	✓	✗
B	✓	✗	✓
C	✗	✗	✓
D	✗	✓	✗

34 Which diagram shows a pyramid of biomass for a woodland?

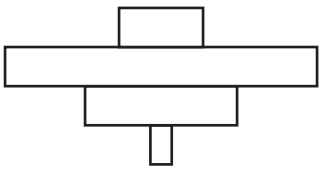
A



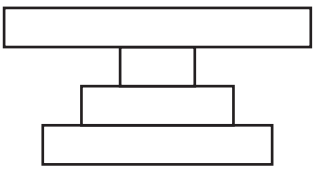
B



C



D



35 Which of the following is an example of a food chain?

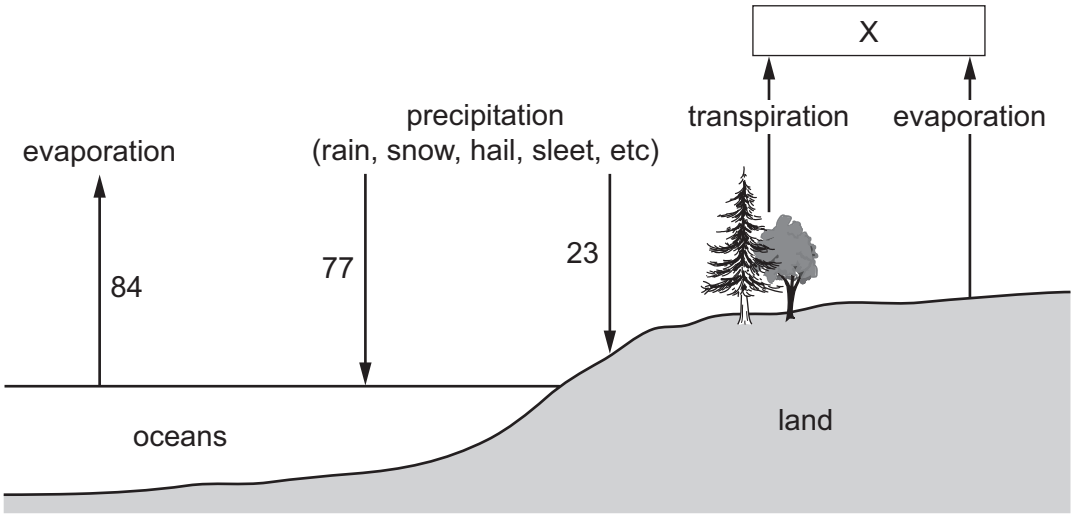
A carnivore → herbivore → producer

B flower → fruit → seed

C grass → antelope → lion

D starch → maltose→ glucose

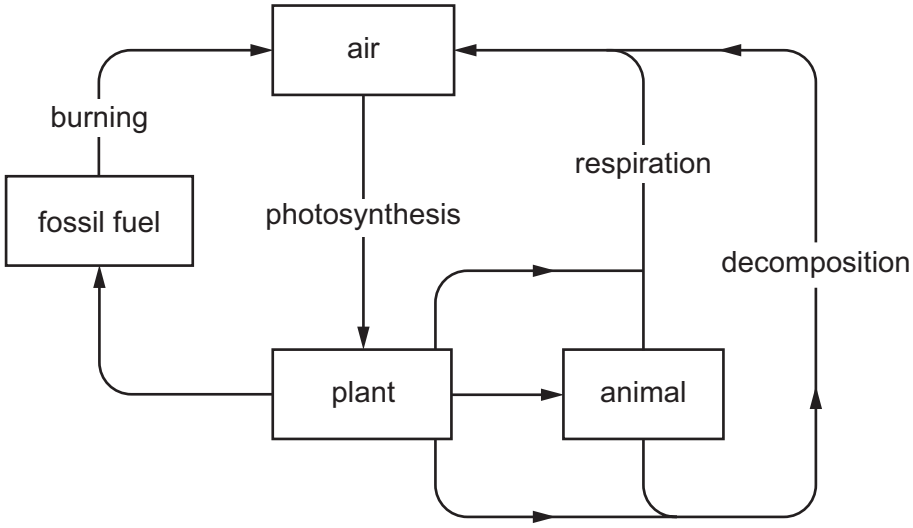
36 The diagram shows the movements of water between oceans, land and the air. The figures are based on an annual mean precipitation of 100 units.



What is the total of evaporation from the land and transpiration from plants at X?

A 7 **B** 13 **C** 16 **D** 77

37 What is shown in the diagram?



A a food web

B non-cyclical energy flow

C the carbon cycle

D the water cycle

38 The table shows the birth rates and death rates in four countries.

Which country will double its population most quickly?

	birth rate / % population	death rate / % population
A	5.0	4.0
B	4.5	2.5
C	3.5	2.0
D	3.0	3.0

39 Which two gases **both** contribute to global warming?

A carbon dioxide and methane

B methane and oxygen

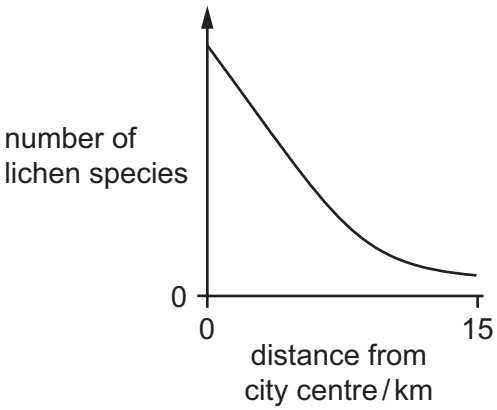
C oxygen and sulfur dioxide

D sulfur dioxide and carbon dioxide

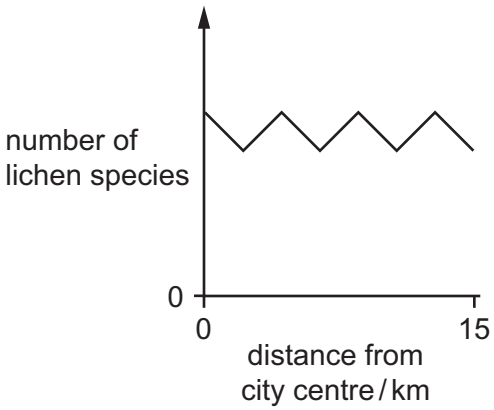
40 Lichens are organisms that do **not** grow well in air containing sulfur dioxide.

Which graph shows the change in number of lichen species from the centre of an industrial city to the countryside 15 km away?

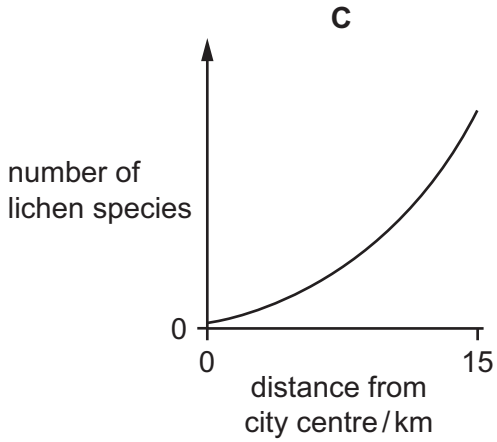
A



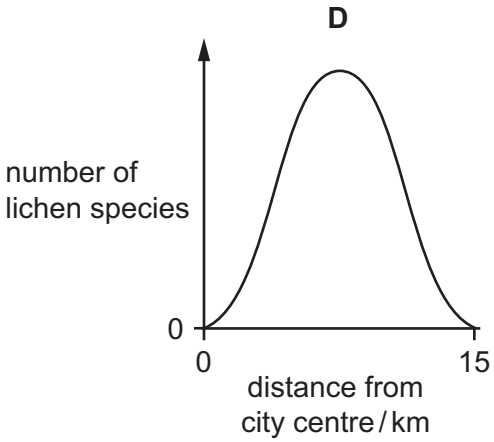
B



C



D



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.

© UCLES 2015