Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **October/November 2016**

45 minutes

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

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.

The 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 2016

CAMBRIDGE
International Examinations

1 Which characteristic of living organisms is responsible for the production of oxygen in the leaf of a plant exposed to sunlight?

View solution

A excretion

B movement

C nutrition

D respiration

2 The scientific name for humans is *Homo sapiens.*

View solution

What does *Homo* refer to?

A arthropod

B genus

C kingdom

D species

3 The diagram shows an insect.

View solution



Use the key to identify the insect.

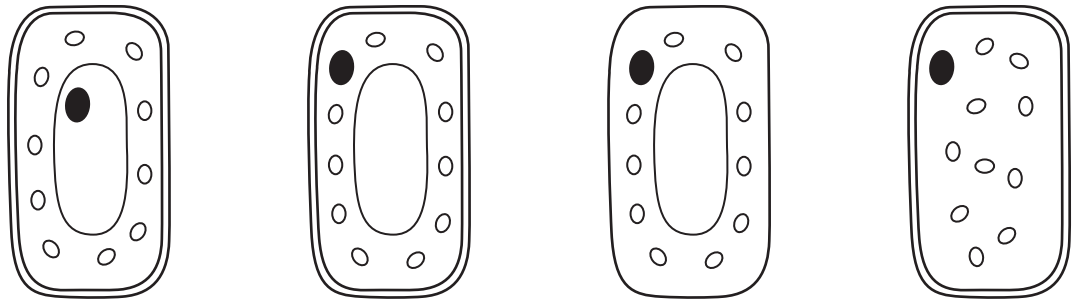
1	wings present	go to 2
	wings absent	**A**
2	two pairs of wings	go to 3
	one pair of wings	**B**
3	wings with circular markings	**C**
	wings without circular markings	**D**

© UCLES 2016

4 Which diagram represents a typical plant cell?

View solution

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



View solution

5 What is **not** an organ?

A aorta

B liver

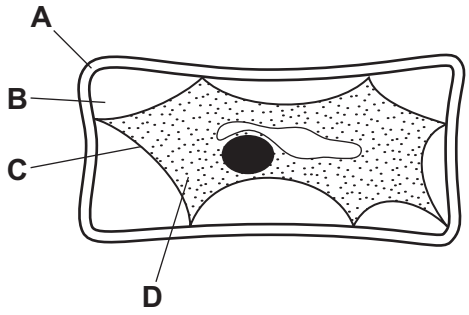
C neurone

D skin

View solution

6 The diagram shows a plant cell which has lost water to its surroundings by osmosis.

Which part is the partially permeable membrane?



View solution

7 Which identifies the chemical elements found in proteins?

	carbon	hydrogen	oxygen	nitrogen
A	✓	✓	✓	✓
B	✓	✓	✓	✗
C	✓	✗	✓	✗
D	✗	✓	✗	✓

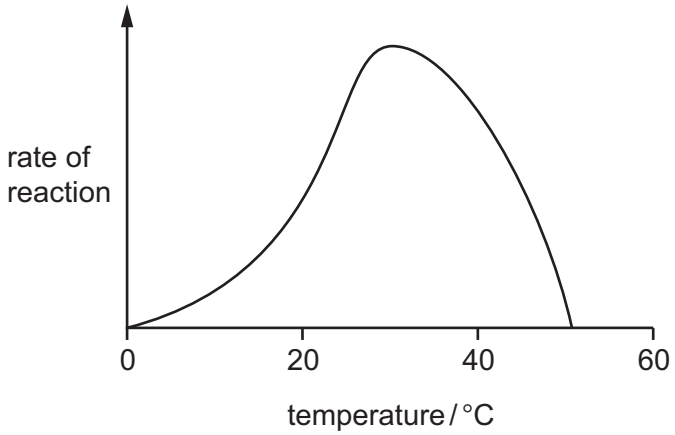
key

✓ = present

✗ = absent

8 The graph shows the effect of temperature on an enzyme-controlled reaction.

View solution



Which statement describes the effect of temperature on this reaction?

A As the temperature increases to 25 °C the reaction speeds up.

B Between 10 °C and 20 °C the enzyme stops working.

C Between 35 °C and 45 °C the enzyme stops working.

D The optimum temperature for this reaction is 40 °C.

9 Where are carbohydrates made in a green leaf?

View solution

A cell vacuoles

B chloroplasts

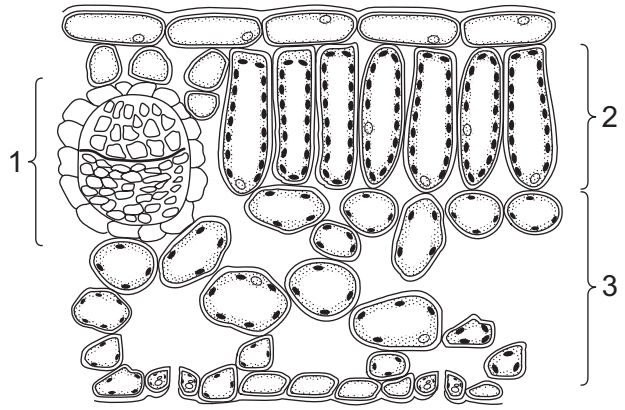
C phloem

D xylem

© UCLES 2016

10 The diagram shows part of a leaf as seen in cross section under the microscope.

View solution



What are the names of regions 1, 2 and 3?

	region		
	1	2	3
A	palisade mesophyll	vascular bundle	spongy mesophyll
B	spongy mesophyll	palisade mesophyll	vascular bundle
C	vascular bundle	palisade mesophyll	spongy mesophyll
D	vascular bundle	spongy mesophyll	palisade mesophyll

11 The roots of plants take up nitrates from the soil.

View solution

What are the nitrates used to make?

A fat

B glucose

C protein

D starch

12 A child decided to eat only meat, oily fish, cheese and bread, and drink only water.

View solution

Which nutrient would be in low levels in this diet?

A calcium

B iron

C vitamin C

D vitamin D

© UCLES 2016

13 What functions are carried out by the small intestine?

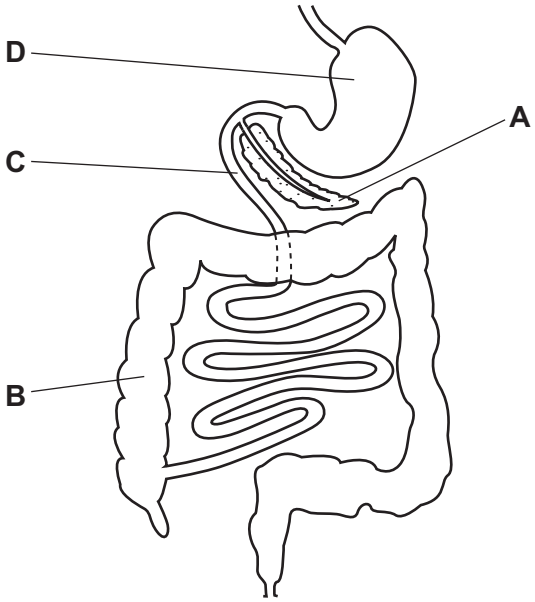
View solution

	absorption of digested food	absorption of water	ingestion
A	✓	✓	✓
B	✓	✓	✗
C	✓	✗	✗
D	✗	✗	✓

14 The diagram shows part of the human alimentary canal and associated organs.

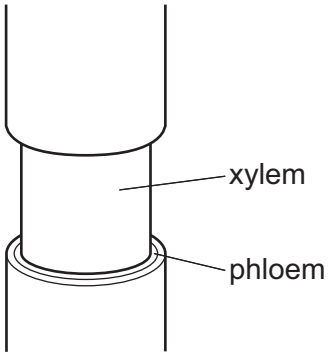
View solution

Where does amylase act on food?



15 The diagram shows the stem of a plant. A strip of the outer tissue including the phloem has been removed.

View solution



How is transport in the plant affected?

A Amino acids and sugar cannot pass to the roots.

B Dissolved salts cannot pass to the leaves.

C Water cannot pass to the leaves.

D Water cannot pass to the roots.

16 A plant shoot is placed in a solution of a dye.

View solution

The dye moves up the stem.

Under which conditions will the dye move slowest?

	temperature	humidity
A	high	high
B	high	low
C	low	high
D	low	low

17 Which process releases water vapour into the atmosphere from the leaves of trees?

View solution

A active transport

B osmosis

C respiration

D transpiration

© UCLES 2016

18 Which blood vessel carries blood to the muscle of the heart?

View solution

A coronary artery

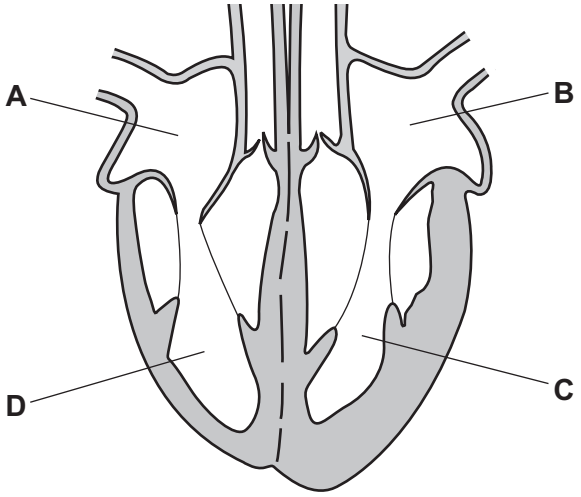
B pulmonary artery

C renal vein

D vena cava

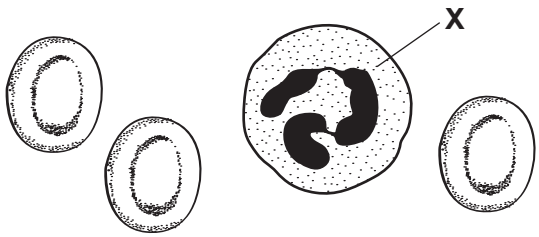
19 Which chamber of the heart receives blood directly from the pulmonary vein?

View solution



20 The diagram shows human blood cells, as seen under a microscope.

View solution



What is the function of cell **X**?

A to carry glucose

B to carry oxygen

C to defend against disease

D to make the blood clot

21 What is a chemical barrier to pathogens?

View solution

A nose hairs

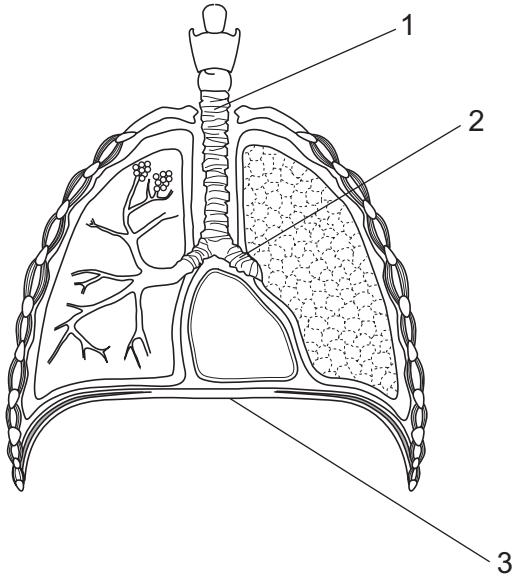
B skin

C stomach acid

D white blood cells

22 The diagram shows the breathing system.

View solution



What are the labelled structures?

	1	2	3
A	bronchus	diaphragm	trachea
B	diaphragm	bronchus	trachea
C	trachea	bronchus	diaphragm
D	trachea	diaphragm	bronchus

23 The equations represent chemical reactions that take place in living organisms.

View solution

Which reaction releases the greatest amount of energy?

A carbon dioxide + water → glucose + oxygen

B glucose + oxygen → carbon dioxide + water

C glucose → alcohol + carbon dioxide

D glucose → lactic acid

© UCLES 2016

24 Where is urea made and where is it removed?

View solution

	made	removed
A	kidney	bladder
B	kidney	kidney
C	liver	kidney
D	liver	rectum

25 In reflexes, which term describes light, heat and sound?

View solution

A effectors

B impulses

C receptors

D stimuli

26 What is a function of the cornea?

View solution

A carries impulses to the brain

B controls how much light enters the eye

C detects light

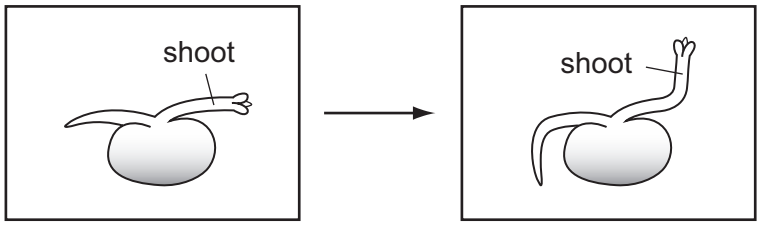
D refracts light

© UCLES 2016

27 The diagram shows seedlings in two experiments on the tropic response of seedlings to gravity and light.

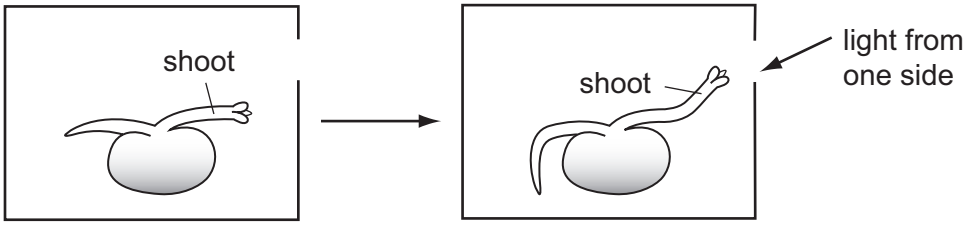
View solution

Experiment 1 — to show the effect of gravity



start of experiment in the dark — 3 days later

Experiment 2 — to show the effect of light



start of experiment — 3 days later

How have the seedlings responded?

	to gravity	to light
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = tropic response shown

✗ = no tropic response shown

View solution

28 When does fertilisation occur in humans?

A when an egg is released

B when implantation occurs

C when sperm and egg nuclei fuse

D when sperm are released

View solution

29 Pollination is the transfer of pollen grains from

A anther to ovary.

B anther to stigma.

C stigma to ovary.

D stigma to ovule.

View solution

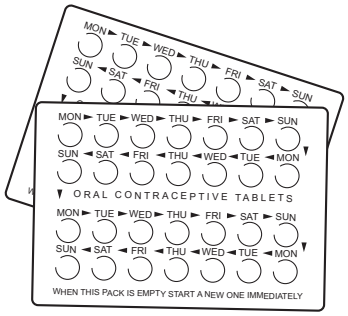
© UCLES 2016

30 The diagrams show four methods of birth control.

View solution

Which one is placed in the uterus?

A



B



C



D



31 Which method of birth control can protect a person from sexually transmitted infections?

View solution

A chemical implant

B condom

C female sterilisation

D IUD

32 Which combination of chromosomes from egg and sperm cells will produce a boy?

View solution

	egg	sperm
A	X	X
B	X	Y
C	Y	X
D	Y	Y

33 What is **not** a function of meiosis?

View solution

A producing genetically different cells

B producing nuclei in ovules

C producing sperm cells

D repairing damaged tissues

© UCLES 2016

34 A farmer buys a bull with unusual curved horns. He wants to know if the bull is pure-breeding for curved horns. He mates the bull with cows in his herd which are all pure-breeding for straight horns.

View solution

Which proportion of calves shows that the bull is pure-breeding for curved horns?

A all with curved horns

B half with straight horns

C three-quarters with curved horns

D three-quarters with straight horns

35 The phenotype of an organism is its

View solution

A combination of alleles.

B family pedigree.

C genetic make-up.

D observable features.

36 An insect is usually pale in colour which helps to camouflage it on tree trunks. Occasionally black individuals of this insect occur.

View solution

If the tree becomes dark in colour due to pollution, then the black individuals become more common.

Which process causes this?

A biotechnology

B conservation

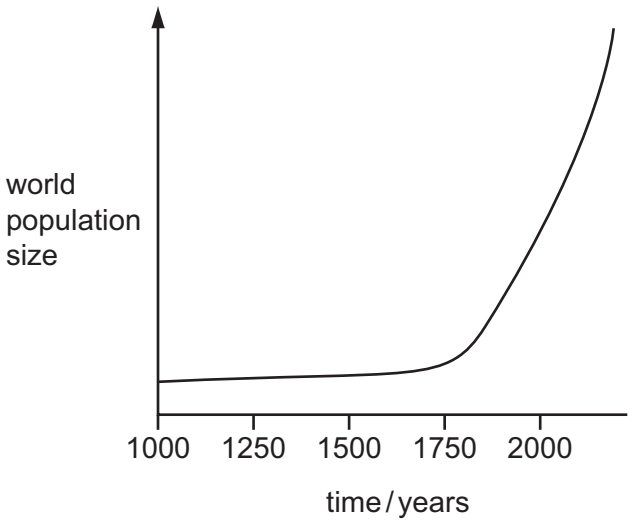
C natural selection

D selective breeding

© UCLES 2016

37 The graph shows how the world population of humans is increasing.

View solution



What has contributed to this increase?

A a high death rate in developing countries

B drought leading to famine

C improved medical care

D the widespread use of contraception

38 Why is yeast used in bread-making?

View solution

A Aerobic respiration produces alcohol.

B Aerobic respiration produces lactic acid.

C Anaerobic respiration produces alcohol.

D Anaerobic respiration produces carbon dioxide.

39 What is an example of genetic engineering?

View solution

A inserting genes into bacteria

B inserting insulin into bacteria

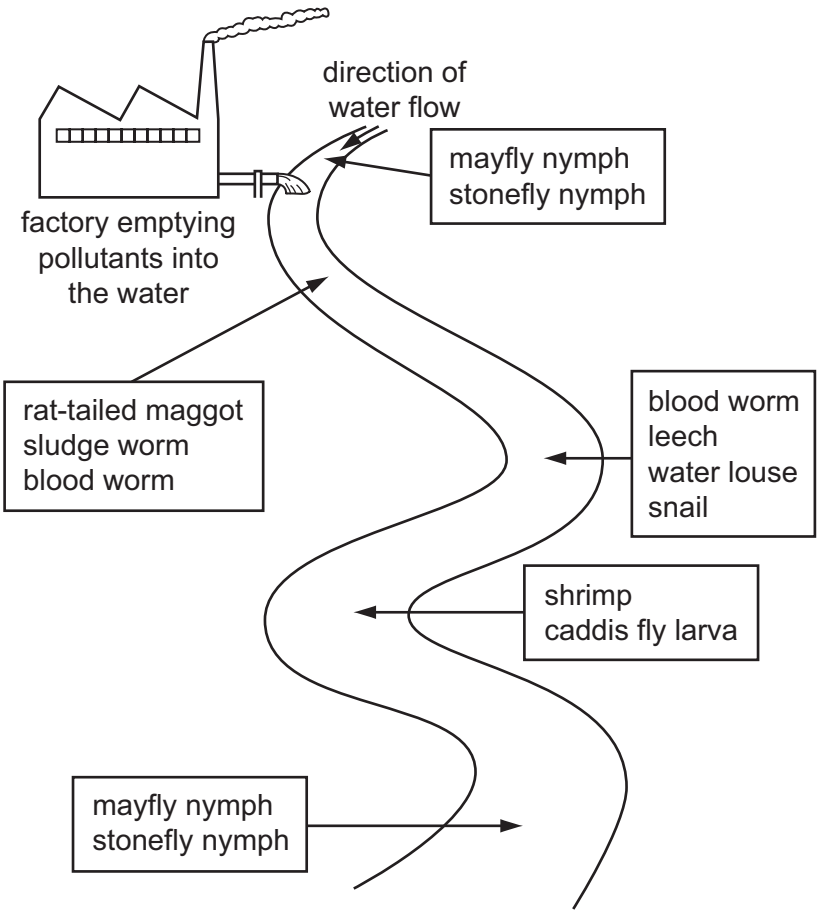
C spraying plants with herbicides

D using pectinase to make fruit juice

© UCLES 2016

40 The diagram shows the results of a survey on the types of animals found along a stretch of river near to a factory.

View solution



Which of the following animals lives in the most polluted water?

A blood worm

B caddis fly larva

C leech

D stonefly nymph

© UCLES 2016

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.