Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **May/June 2019**

45 minutes

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

9736254013

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 regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **14** printed pages and **2** blank pages.

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1 Carbon dioxide diffuses into a leaf.

Which characteristic of living things requires this?

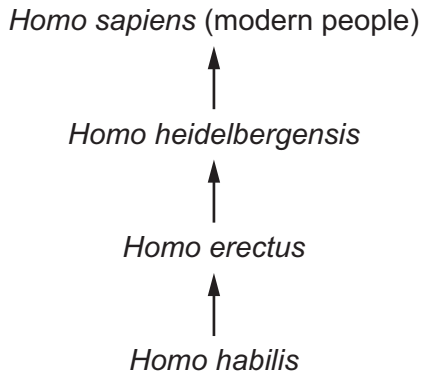
A excretion

B movement

C nutrition

D respiration

2 The diagram shows how *Homo sapiens* (modern people) could have evolved from earlier ancestors.



Which statement about modern people and their ancestors is correct?

A They are in the same species and the same genus.

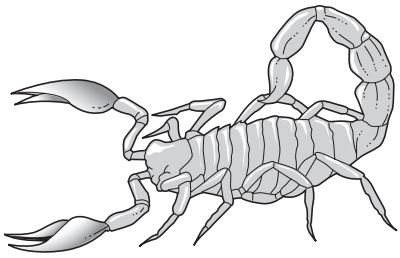
B They are in the same species but not the same genus.

C They are in the same genus but not the same species.

D They are neither the same species nor the same genus.

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3 The diagram shows an animal.



Using the key, what is the animal?

1 has three pairs of legs ..... go to 2

has four pairs of legs ..... go to 3

2 has wings ..... **A**

has no wings ..... **B**

3 large claws (pedipalps) ..... **C**

no large claws (pedipalps) ..... **D**

4 Which features are possessed by **all** plant cells?

	a cell wall	chloroplasts
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = present

✗ = absent

5 Which group of organs belongs to the same organ system?

A diaphragm, oesophagus, trachea

B heart, liver, lungs

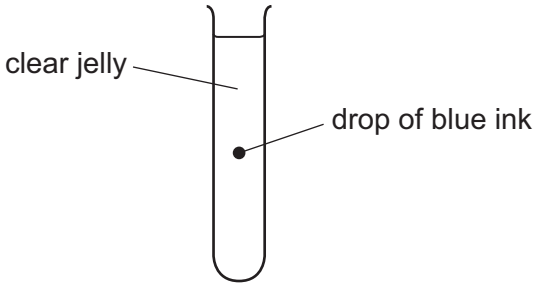
C heart, stomach, trachea

D oesophagus, intestine, stomach

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[Turn over

6 The diagram shows a test-tube containing clear jelly. A drop of blue ink is injected into the middle of the jelly.



The blue colour of the ink spreads throughout the jelly.

By which process does the blue ink spread through the jelly?

A active transport

B catalysis

C diffusion

D osmosis

7 Which process describes osmosis?

A diffusion of water through a cell wall

B diffusion of water through a partially permeable membrane

C diffusion of water through the cell sap

D diffusion of water through the cytoplasm

8 Which row shows the chemical elements contained in fats?

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

key

✓ = present

✗ = absent

9 Small molecules are used as the basic units in the synthesis of large food molecules.

Which statement is correct?

A Amino acids are basic units of carbohydrates.

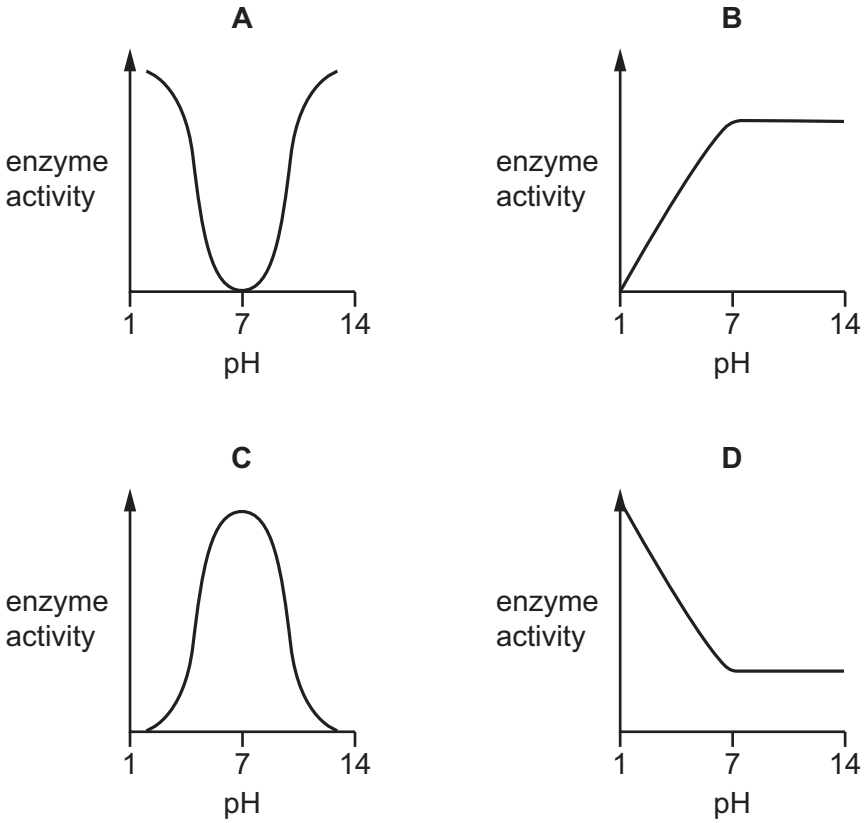
B Fatty acids are basic units of glycogen.

C Glycerol is a basic unit of oils.

D Simple sugar is a basic unit of protein.

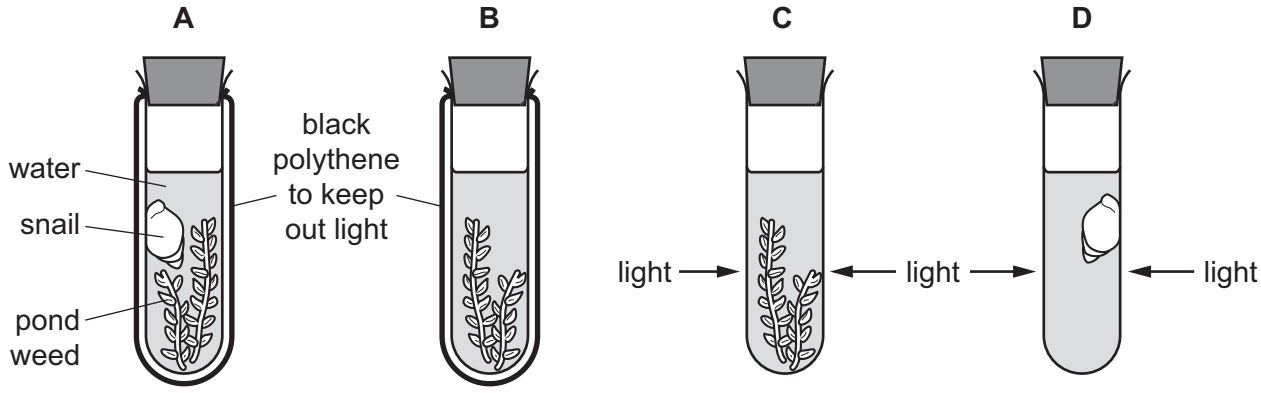
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10 Which graph shows the effect of pH on enzyme activity?

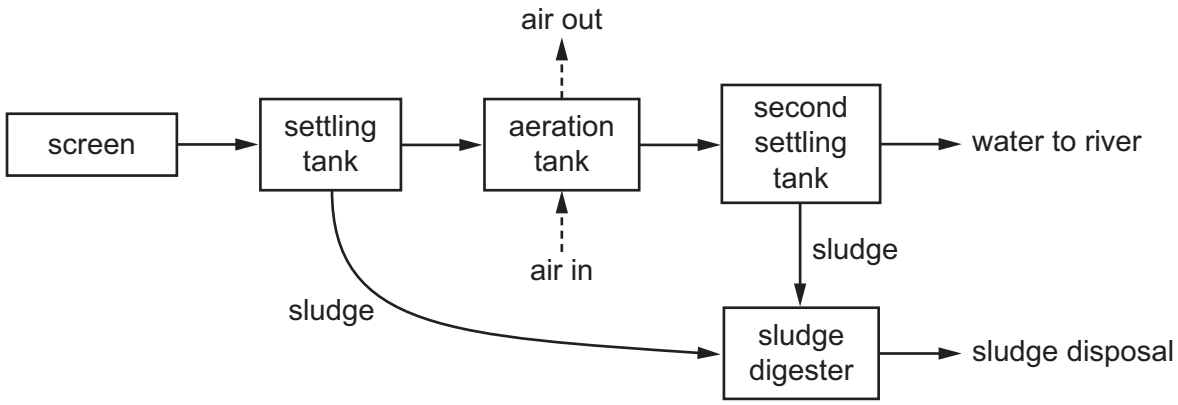


11 The diagram shows an experiment to investigate the balance between respiration and photosynthesis.

In which tube are photosynthesis and respiration taking place at the same time?



12 The diagram shows how sewage is treated.



Why is air bubbled through the aeration tank?

A to encourage microorganisms to reproduce quickly

B to float the sludge

C to settle the sludge

D to stop microorganisms from reproducing too quickly

13 The food label is from a packet of cereal.

The label can help someone who is concerned about their diet.

Nutrition	
Typical values	100 g contains
Energy	985 kJ 235 kcal
Fat	1.5 g
of which saturates	0.3 g
Carbohydrate	45.5 g
of which sugars	3.8 g
Fibre	2.8 g
Protein	7.7 g
Salt	0.5 g

A person eats 45 g of cereal.

One of the food types listed in the label can help prevent constipation.

How many grams of this food type does the person eat?

A 1.3 g **B** 2.8 g **C** 3.5 g **D** 7.7 g

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14 Digested food molecules move into the cells of the body where they are used and become part of the cells.

What is this a definition of?

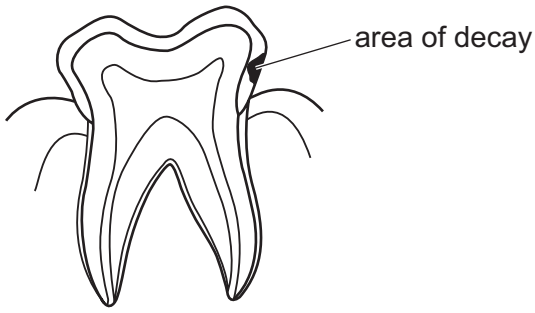
A absorption

B assimilation

C digestion

D ingestion

15 The diagram shows a human tooth with an area of decay.



What is likely to have caused the decay?

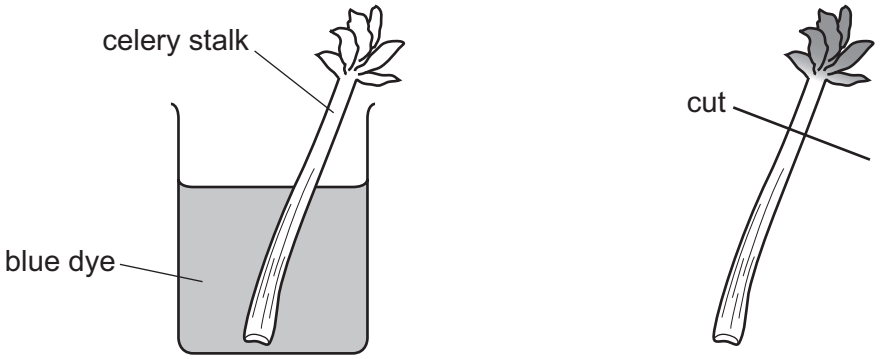
A acids released by bacteria

B digestion of the tooth by bacteria

C excess of fat in the food

D lack of fibre in the food

16 A celery stalk was placed into a beaker of blue dye. When the dye reached the leaves, the stalk was taken out and a section was cut, as shown in the diagram.

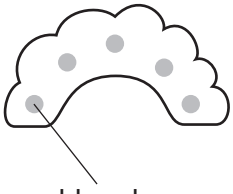


Which diagram shows the appearance of the cut end of the stalk?

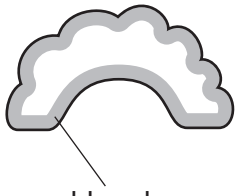
A



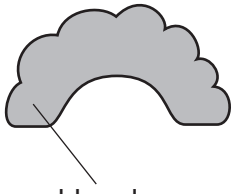
B



C



D



17 The table shows the rate of water flow through a tree over a 12 hour period.

time of day	rate of flow / cm per hour
7:00	100
9:00	120
11:00	140
13:00	250
15:00	300
17:00	260
19:00	180

What conclusion can be drawn from the table?

A Between 7:00 and 17:00 hours the rate of flow continuously increases.

B The greatest increase in rate of flow in a two-hour period is between 11:00 and 13:00 hours.

C Water does not flow up through a tree at night.

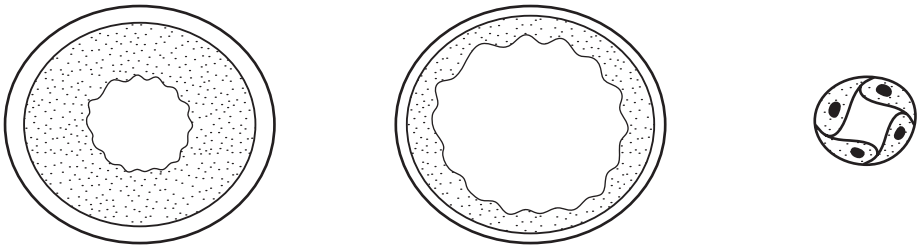
D Water flow is affected by humidity.

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18 How does the transport system of a human differ from the transport system of a tree?

	human	tree
A	carries mineral ions	does not carry mineral ions
B	must carry oxygen	does not need to carry oxygen
C	does not transport cells	transports cells
D	vessels	no vessels

19 The diagram shows cross-sections through three types of blood vessel, **not** drawn to the same scale.



V W X

Which section is from a vein and which is from a capillary?

	vein	capillary
A	V	W
B	W	V
C	W	X
D	X	W

20 Which disease is transmissible?

A cholera

B coronary heart disease

C lung cancer

D scurvy

21 What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

22 Which pathway is followed by air passing into the body?

A larynx → trachea → bronchi → bronchioles → alveoli

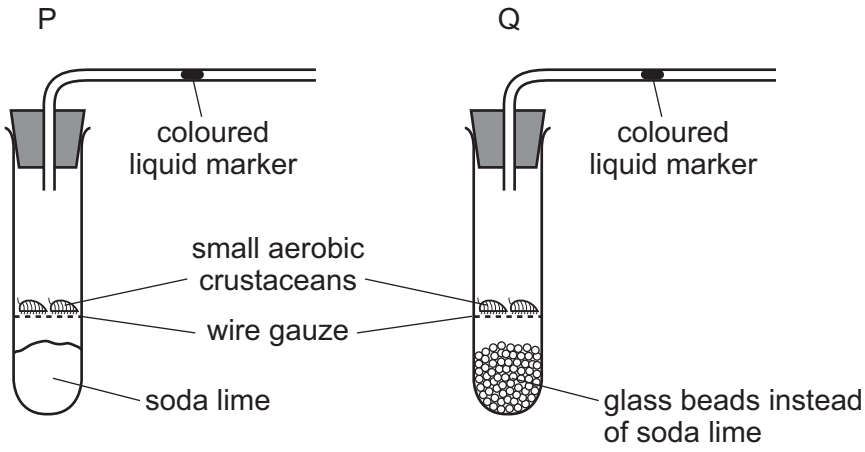
B larynx → trachea → bronchioles → bronchi → alveoli

C trachea → larynx → bronchi → alveoli → bronchioles

D trachea → larynx → bronchi → bronchioles → alveoli

23 The diagram shows two experiments investigating gas exchange in small aerobic crustaceans.

Soda lime absorbs carbon dioxide.



Which way does the liquid marker move?

	P	Q
A	left	right
B	left	stays still
C	right	left
D	right	stays still

24 Yeast is placed inside a container full of a glucose solution with no air.

Which word equation summarises the process that takes place inside the container?

A glucose → ethanol + carbon dioxide

B glucose → lactic acid

C glucose + oxygen → carbon dioxide + water

D glucose + oxygen → ethanol

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25 Where is urea formed and excreted?

	formed	excreted
A	bladder	heart
B	heart	liver
C	kidney	bladder
D	liver	kidney

26 Which structure is an effector?

A adrenal gland

B motor neurone

C optic nerve

D spinal cord

27 When we get hot and the temperature of our blood rises, one of the ways we can cool down is by sweating.

What detects the rise in temperature of the blood?

A skin

B sweat glands

C hair erector muscles

D brain

28 A person suffering from influenza was given antibiotics. Influenza is caused by a virus.

Why did the antibiotics **not** cure the person with influenza?

A Antibiotics do not affect viruses.

B The antibiotic course was not long enough.

C The influenza virus became resistant to the antibiotics.

D The person was immune to antibiotics.

29 Which parts of the gametes fuse during fertilisation?

A cell membranes

B cell walls

C cytoplasm

D nuclei

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30 Which environmental conditions **must** be present for germination?

A carbon dioxide and water

B light and suitable temperature

C oxygen and carbon dioxide

D water and oxygen

31 What happens to the lining of the human uterus in the days before the release of an egg cell?

A breaks down

B lost from body

C thickens

D thins

32 Which word describes an individual who has two identical alleles for a particular gene?

A dominant

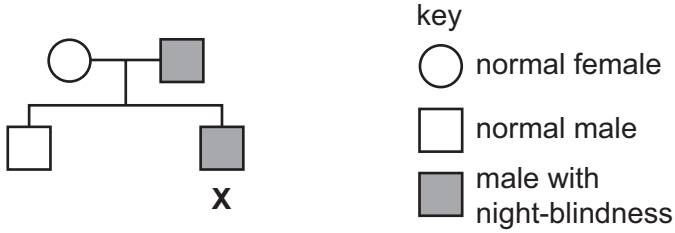
B heterozygous

C homozygous

D phenotype

33 One type of night-blindness is an inherited condition, caused by a dominant allele.

The chart shows how this condition was passed on in one family.

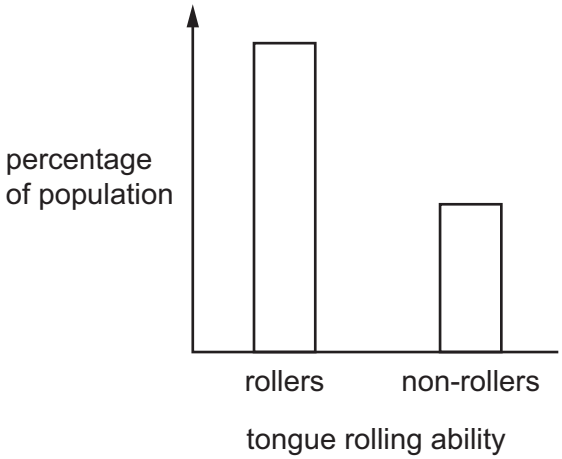


Person **X** marries someone with normal sight.

What is the chance that their first child will have night-blindness?

A 0% **B** 25% **C** 50% **D** 75%

34 The diagram shows the percentage of tongue rollers and non-rollers in a human population.



Which word describes this type of variation?

A adaptive

B continuous

C discontinuous

D environmental

35 The diagram shows the average head and ear shapes of rabbits from four different regions.

Which is best adapted to living in the coldest region?

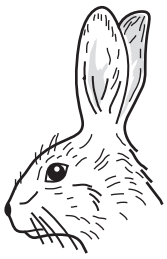
A



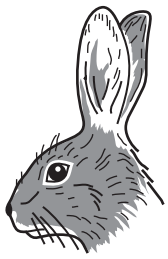
B



C



D



36 The food chain shows how energy is transferred to a human.

lettuce → snails → duck → human

Where did the energy in the lettuce come from?

A snails

B soil

C Sun

D water

37 Which process forms part of the carbon cycle?

A condensation

B fossilisation

C precipitation

D transpiration

38 Which statement correctly explains why bacteria are used in biotechnology?

A Bacteria reproduce slowly.

B Bacteria need complex molecules.

C Bacteria can make complex molecules.

D Bacteria are all pathogens.

39 Which enzyme is used in fruit juice production to make the juice clear?

A amylase

B pectinase

C protease

D lipase

40 What is **not** a reason for using chemical fertilisers in food production?

A improving growth rate

B improving mineral content of the soil

C increasing yields

D reducing competition with weeds

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