Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **February/March 2020**

45 minutes

You must answer on the multiple choice answer sheet.

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

INSTRUCTIONS

- 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 multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.

INFORMATION

- The total mark for this paper is 40.
- Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
- Any rough working should be done on this question paper.

This document has **16** pages. Blank pages are indicated.

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1 Which characteristic do **all** living organisms show?

A breathing

B excretion

C photosynthesis

D tropism

2 Using the binomial naming system, the Arctic fox is called *Vulpes lagopus*.

Which row is correct?

	Vulpes	*lagopus*
A	genus	kingdom
B	genus	species
C	species	genus
D	species	kingdom

3 What is a characteristic of both insects and arachnids?

A eight legs

B exoskeleton

C three pairs of legs

D wings

4 What structures can be found in both plant and animal cells?

A cell walls and cell membranes

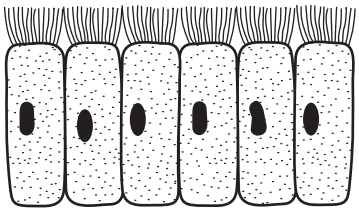
B nuclei and cell walls

C cytoplasm and chloroplasts

D cell membranes and nuclei

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5 The diagram shows a sample of material taken from an organism.



Which level of organisation does the sample show?

A cell

B organ

C organ system

D tissue

6 What is the function of a root hair cell?

A absorption

B photosynthesis

C reproduction

D support

7 Which row describes osmosis?

	movement of water	energy from respiration used	movement through a partially permeable membrane
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✗
D	✗	✗	✓

key

✓ = yes

✗ = no

8 A student made the following statements about the movement of ions by active transport.

1 It is the net movement of particles from a low concentration to a high concentration.

2 It is the net movement of particles from a high concentration to a low concentration.

3 It requires the use of energy from respiration.

4 It can only take place in living cells.

Which statements are correct?

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

9 A test was performed on a food substance. A positive result was shown by a colour change to blue-black.

What solution was used for the test?

A biuret solution

B DCPIP solution

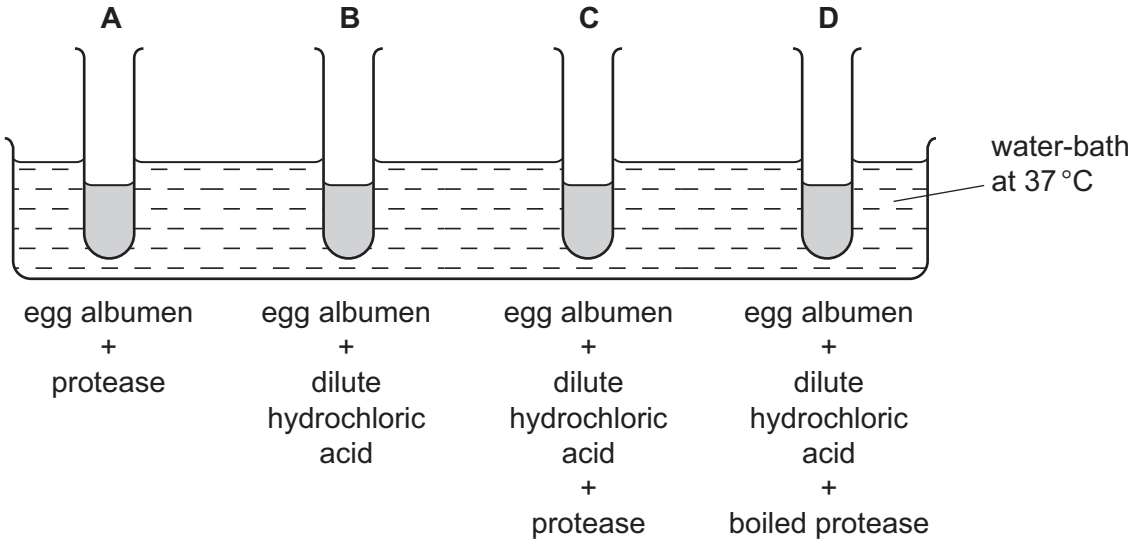
C iodine solution

D Benedict's solution

10 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?



11 What is left at the end of an enzyme-controlled reaction?

A enzymes and products

B enzymes and substrates

C enzymes only

D products only

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12 A student drew a diagram to show the substances used and produced in photosynthesis in a leaf.

1 + 2 are used by the leaf

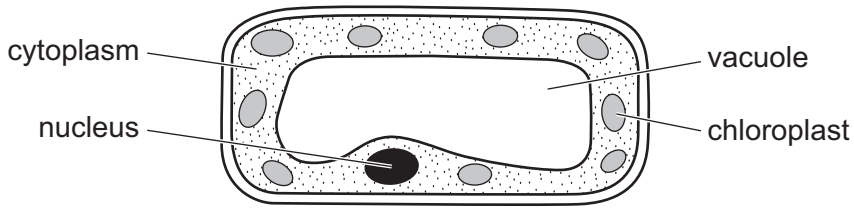


3 + 4 are produced by the leaf

Which row shows the correct labels for the diagram?

	1	2	3	4
A	carbon dioxide	glucose	oxygen	water
B	water	carbon dioxide	glucose	oxygen
C	oxygen	water	carbon dioxide	glucose
D	glucose	oxygen	water	carbon dioxide

13 The diagram shows a type of plant cell.



In which tissue is this cell found?

A leaf epidermis

B palisade mesophyll

C root epidermis

D xylem

14 The list shows some human health problems.

1 chronic obstructive pulmonary disease

2 constipation

3 coronary heart disease

4 obesity

Which problems can be caused by malnutrition?

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

15 The table shows the percentage of students from two schools who have one or more decayed teeth.

	percentage of students with decayed teeth
school X	30
school Y	60

What might explain these results?

A There is less calcium in the students' diet at school X than at school Y.

B There is less sugar in the students' diet at school X than at school Y.

C There is less vitamin C in the students' diet at school X than at school Y.

D There is less vitamin D in the students' diet at school X than at school Y.

16 Digested proteins are absorbed into the blood as

A amino acids.

B fatty acids.

C glucose.

D glycerol.

17 When stems with white flowers are cut and placed in a blue stain the petals turn blue.

Which tissue in the stem does the stain travel through to reach the petals?

A epidermis

B mesophyll

C phloem

D xylem

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

A active transport

B osmosis

C respiration

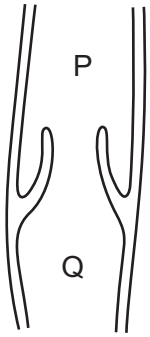
D transpiration

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19 Which person is most at risk from developing coronary heart disease?

	age	gender	activity level	other information
A	23	female	professional athlete	non-smoker
B	40	male	plays sport at weekends	non-smoker
C	19	female	plays sport twice a week	smokes 5 cigarettes a day
D	65	male	does no exercise	smokes 20 cigarettes a day

20 The diagram shows a section through a blood vessel.



Which type of blood vessel is shown, and in which direction does the blood flow?

	type of vessel	direction of flow
A	artery	P to Q
B	artery	Q to P
C	vein	P to Q
D	vein	Q to P

21 Which disease is transmissible?

A cholera

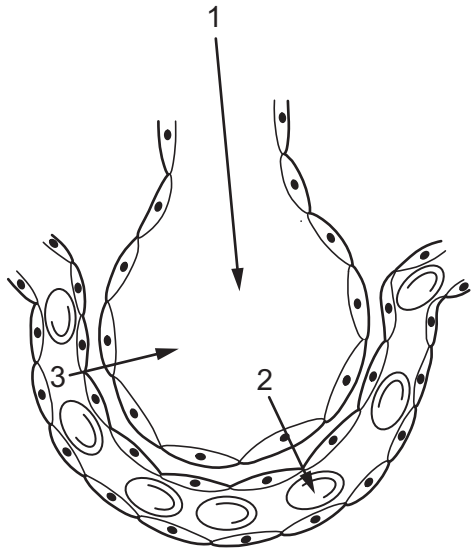
B chronic obstructive pulmonary disease

C lung cancer

D scurvy

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22 The diagram shows an alveolus. The arrows represent the movement of gases.

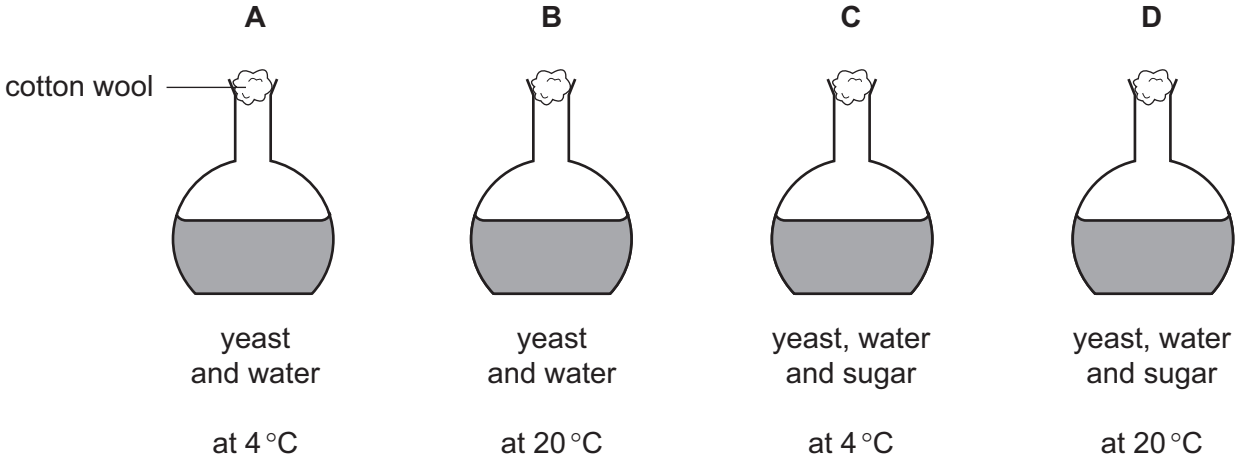


Which row is correct?

	1	2	3
A	oxygen	carbon dioxide	air
B	air	carbon dioxide	oxygen
C	air	oxygen	carbon dioxide
D	carbon dioxide	oxygen	air

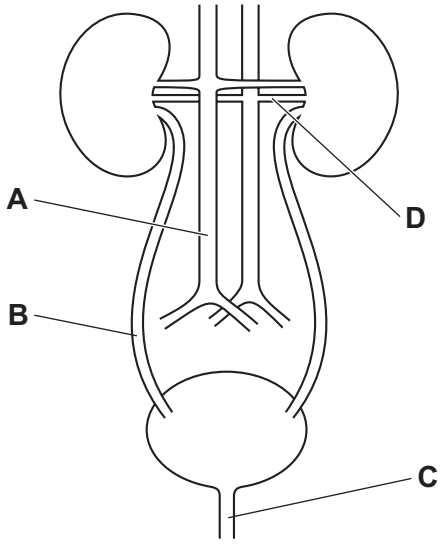
23 Four flasks are sterilised and are set up as shown.

Which flask will contain the most alcohol after several hours?



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24 In the diagram, which letter identifies the urethra?



25 Some organs are listed.

1 adrenal

2 pancreas

3 ovary

4 salivary

Which are endocrine glands?

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

26 The table shows some of the responses that occur in humans when body temperature changes.

Which row shows the responses that occur when the body temperature increases **above** normal?

	hair lies flat	shivering	sweating
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✓
D	✓	✓	✓

key

✓ = yes

✗ = no

27 What is an example of phototropism?

A a chemical messenger produced by a plant

B a painful sensation in response to a stimulus

C the growth of a plant root towards the centre of the Earth

D the growth of a plant shoot towards light

28 The oxygen carrying capacity of the blood of smokers is less than that of non-smokers.

Which component of tobacco smoke causes this?

A carbon monoxide

B nicotine

C smoke particles

D tar

29 Which statement about asexual reproduction is correct?

A Asexual reproduction produces genetically identical offspring from one parent.

B Asexual reproduction produces genetically identical offspring from two parents.

C Asexual reproduction produces genetically different offspring from one parent.

D Asexual reproduction produces genetically different offspring from two parents.

30 Which environmental factor is **not** always a requirement for seed germination?

A light

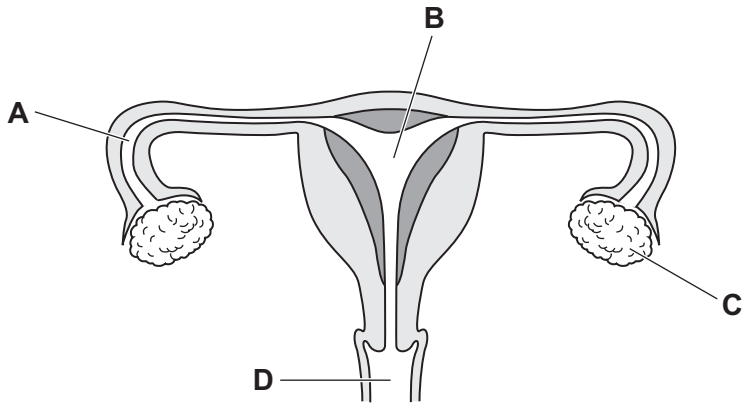
B oxygen

C suitable temperature

D water

31 The diagram shows the female reproductive system.

Where are gametes produced?



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32 Some features of cell division are listed.

1 involved in making gametes

2 involved in replacing cells

3 makes genetically different cells

4 makes genetically identical cells

Which features are involved in meiosis?

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

33 Which cross will be pure-breeding?

A a female homozygous individual and a male heterozygous individual bred together

B a male homozygous individual and a female heterozygous individual bred together

C two identical heterozygous individuals bred together

D two identical homozygous individuals bred together

34 What applies to selective breeding but **not** to natural selection?

A Humans select individuals with desirable features.

B Individuals may produce a large number of offspring.

C Individuals pass their alleles to the next generation.

D There is variation among the offspring produced.

35 What is the principal source of energy for living organisms?

A herbivores

B plants

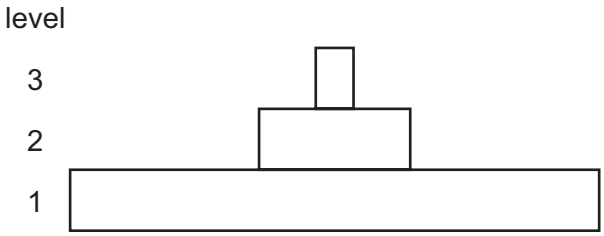
C photosynthesis

D the Sun

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[Turn over

36 The diagram shows a pyramid of numbers.



Which type of organism is found at level 1?

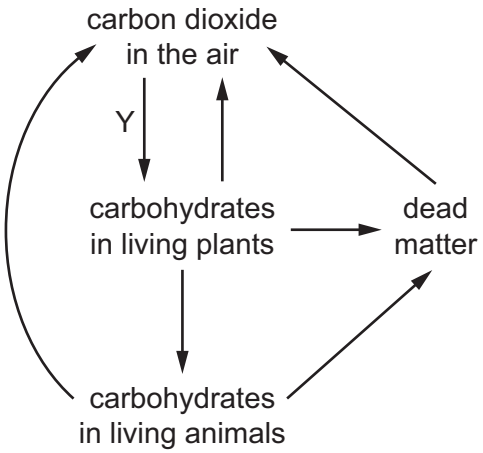
A carnivore

B decomposer

C herbivore

D producer

37 The diagram shows part of the carbon cycle.



Which process occurs at Y?

A combustion

B decay

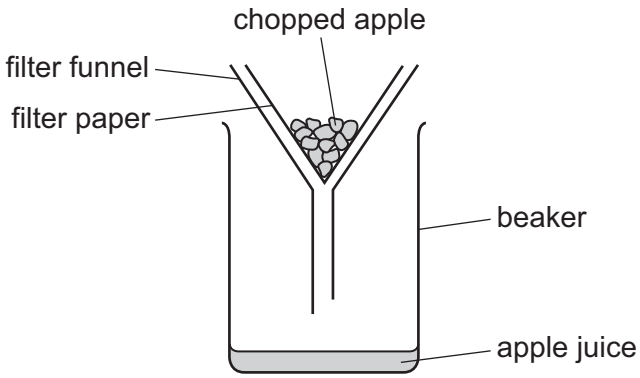
C photosynthesis

D respiration

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38 Chopped apple is placed into filter paper and a funnel as shown in the diagram.

Enzymes are added to increase the volume of apple juice released.



Which enzyme would release the highest volume of juice?

A amylase

B lipase

C pectinase

D protease

39 Which effect is **most** likely to occur as a result of deforestation?

A an increase in the number of species

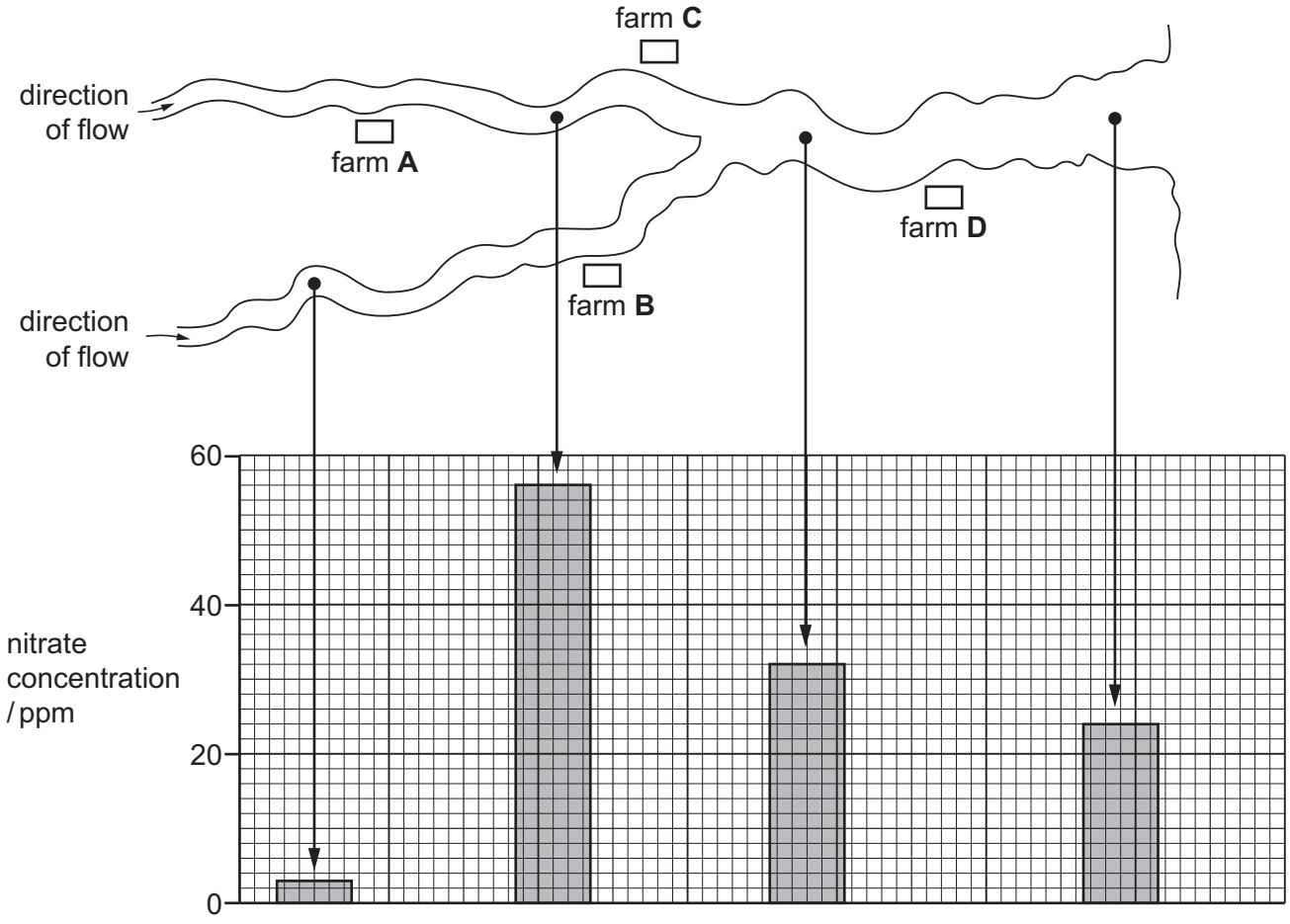
B an increase in soil erosion

C a decrease in the level of carbon dioxide in the atmosphere

D a decreased risk of flooding

40 The diagram shows the positions of four farms and the concentrations of nitrate at different points in a river.

Which farm is likely to have been using too much fertiliser on its land?



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