Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **October/November 2022**

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.
- Any rough working should be done on this question paper.

This document has **16** pages. Any blank pages are indicated.

IB22 11_0610_12/4RP
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1 Which process provides an organism with the raw materials needed for tissue repair?

View solution

A excretion

B growth

C nutrition

D respiration

2 Which name is given to a group of individuals that can reproduce to produce fertile offspring?

View solution

A a genus

B a kingdom

C a species

D an organ system

3 An animal has four legs, hair and a tail.

View solution

To which group of vertebrates does it belong?

A amphibians

B birds

C mammals

D reptiles

4 Root hair cells are found on plant roots.

View solution

Which feature is present in a root hair cell but **not** in a sperm cell?

A cell membrane

B cell wall

C chloroplasts

D cytoplasm

5 The cells listed have specialised structures that allow them to carry out their functions.

View solution

1 ciliated cell

2 nerve cell

3 root cortex cell

4 sperm cell

Which cells have structures that can move?

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

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6 A cell was viewed under a microscope. The actual length of the cell is 0.025 mm. The magnification of the image is ×400.

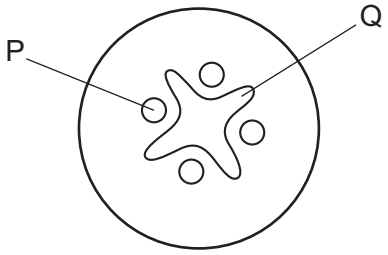
View solution

What is the length of the cell in the image?

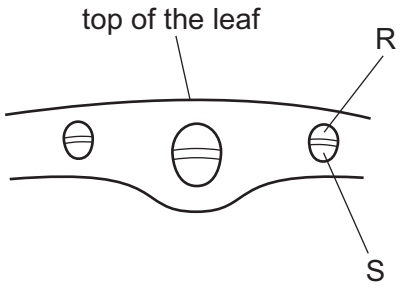
A 10 mm **B** 100 mm **C** 1600 mm **D** 16 000 mm

7 The roots of a plant were placed in a solution of red dye. After 24 hours, a section of root and a section of leaf were cut from the plant.

View solution



root



leaf

In which tissues will the red dye be visible?

A P and R **B** P and S **C** Q and R **D** Q and S

8 Which row shows features of osmosis in cells?

View solution

	requires a cell membrane	requires a cell wall	water can move into the cell	water can move out of the cell
A	✓	✓	✓	✓
B	✓	✗	✓	✓
C	✓	✓	✗	✓
D	✗	✓	✓	✗

key
✓ = yes
✗ = no

9 Which chemical is used to test for the presence of protein in a food sample?

View solution

A Benedict's solution

B biuret solution

C DCPIP

D iodine solution

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10 Which statement about enzymes is correct?

View solution

A They are made of carbohydrates.

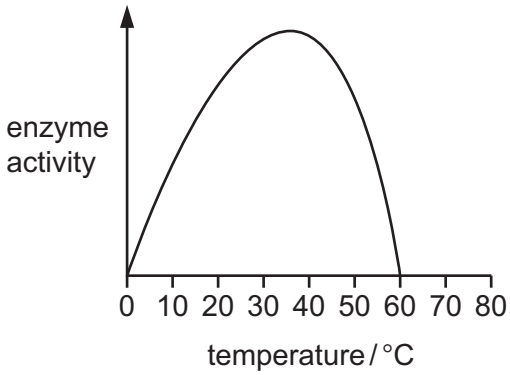
B Their activity is unaffected by pH.

C They are used up during the reaction.

D They have a complementary shape to their substrate.

11 The graph shows the effect of temperature on the activity of an enzyme.

View solution



At which temperature is the enzyme most active?

A 15 °C **B** 25 °C **C** 35 °C **D** 60 °C

12 The substances listed are found in the leaf of a plant.

View solution

Which substance is obtained from the soil?

A carbon dioxide

B chlorophyll

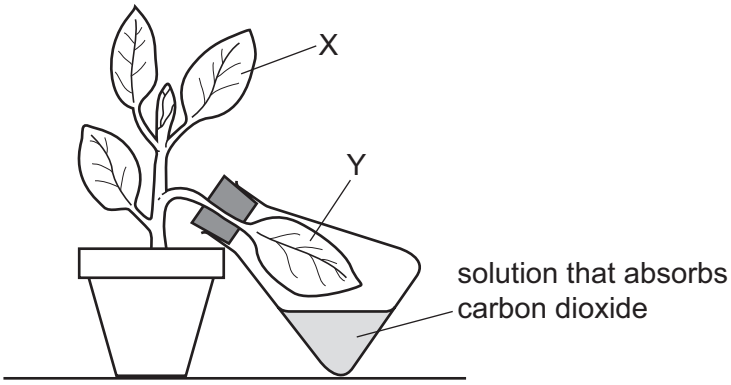
C glucose

D mineral ions

13 The diagram shows an experiment to find out if carbon dioxide is necessary for photosynthesis.

The plant is kept in the dark for 48 hours to remove any starch. Then it is set up in the light, as shown.

View solution



After 10 hours, leaves X and Y were tested for starch.

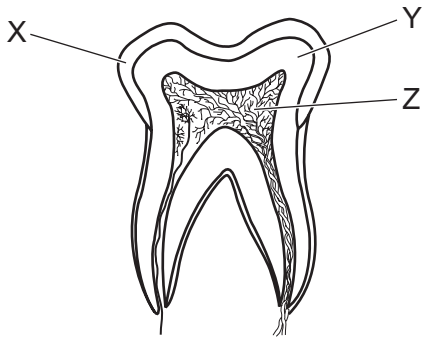
What is the expected result?

	presence of starch	
	in leaf X	in leaf Y
A	✓	✓
B	✗	✗
C	✓	✗
D	✗	✓

key
✓ = present
✗ = absent

14 The diagram shows a cross-section of a human tooth.

View solution



Which row identifies the labels in the diagram?

	X	Y	Z
A	dentine	enamel	pulp cavity
B	dentine	pulp cavity	enamel
C	enamel	pulp cavity	dentine
D	enamel	dentine	pulp cavity

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15 Which statement is correct?

View solution

A Amylase breaks down glucose to starch.

B Amylase is secreted into the mouth and small intestine.

C Lipase breaks down glycerol to fatty acids.

D Protease is secreted into the oesophagus and stomach.

16 Where is most water absorbed in the alimentary canal?

View solution

A large intestine

B oesophagus

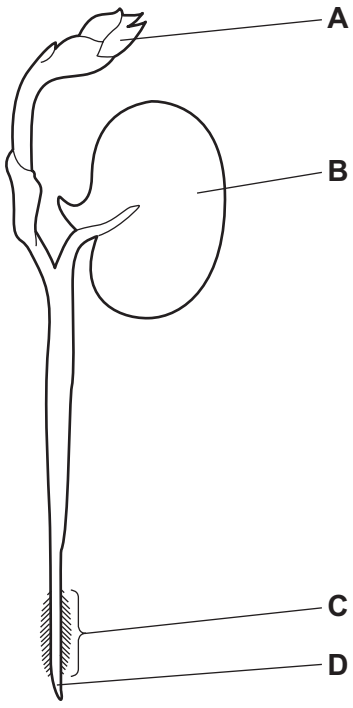
C small intestine

D stomach

17 The diagram shows a bean seedling soon after it has germinated.

View solution

Where is most water absorbed?



18 Which process occurs during transpiration?

View solution

A evaporation of water from the xylem

B loss of water by osmosis from the guard cells

C movement of water vapour through the spongy mesophyll by active transport

D movement of water vapour through the stomata by diffusion

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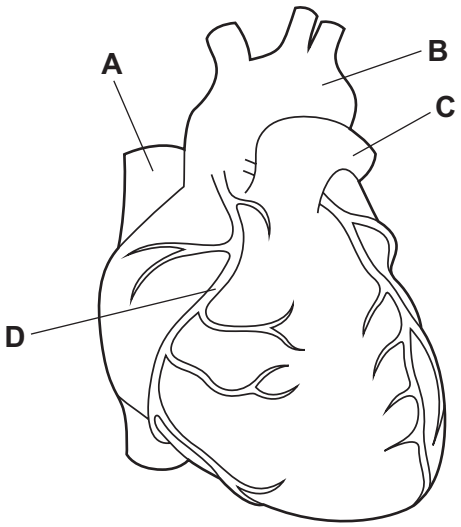
19 The diagram shows the outside of a human heart.

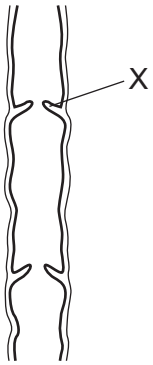
View solution

Which structure is a coronary artery?



20 The diagram shows a section of a human vein.

View solution



What is the function of the part labelled X?

A to make sure the blood flows to the heart

B to make sure the blood flows to the kidneys

C to make sure the blood flows to the brain

D to make sure the blood flows to the lungs

21 *Campylobacter* is a bacterium that can cause food poisoning.

View solution

Which word describes *Campylobacter*?

A antibody

B disease

C pathogen

D symptom

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

View solution

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

23 Which process could continue without energy from respiration?

View solution

A active transport

B growth

C osmosis

D protein synthesis

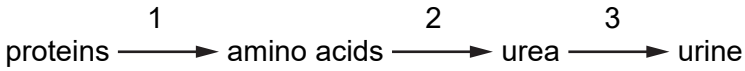
24 Which row shows the products of anaerobic respiration in humans and yeast?

View solution

	products in humans	products in yeast
A	lactic acid only	alcohol only
B	lactic acid only	alcohol and carbon dioxide
C	lactic acid and carbon dioxide	alcohol only
D	lactic acid and carbon dioxide	alcohol and carbon dioxide

25 A person eats foods containing proteins. Some of the amino acids in the proteins are converted to urea and excreted from the body.

View solution



Which row identifies the sites of processes 1, 2 and 3?

	site of process 1	site of process 2	site of process 3
A	stomach	liver	kidney
B	liver	kidney	bladder
C	stomach	kidney	liver
D	liver	stomach	kidney

26 Which part of the eye refracts light?

View solution

A cornea

B iris

C pupil

D retina

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27 Which hormone causes an increase in breathing rate, an increase in heart rate and the widening of pupils?

View solution

A insulin

B adrenaline

C oestrogen

D testosterone

28 Which row about tropic responses is correct?

View solution

	gravitropism	phototropism
A	root grows away from gravity	shoot grows away from light source
B	root grows away from gravity	shoot grows towards light source
C	root grows towards gravity	shoot grows away from light source
D	root grows towards gravity	shoot grows towards light source

View solution

29 What is the definition of a drug?

A a substance produced by a gland that is carried in the blood and alters the activity of target organs

B a substance produced by white blood cells that is carried in the blood and destroys bacteria and viruses

C a substance taken into the body that modifies or affects chemical reactions carried out in the body

D a substance that increases the rate of chemical reactions in the body and is not changed by the reaction

30 What occurs during fertilisation?

View solution

A fusion of two gamete nuclei

B fusion of two zygote nuclei

C splitting of a gamete nucleus

D splitting of a zygote nucleus

31 Which hormone causes the development of secondary sexual characteristics in human males?

View solution

A adrenaline

B insulin

C progesterone

D testosterone

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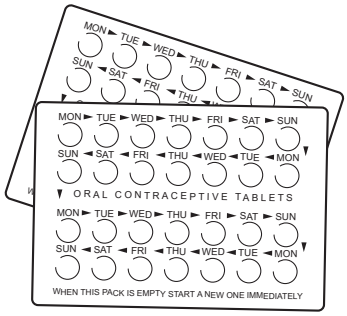
32 The diagrams show four methods of birth control.

View solution

1



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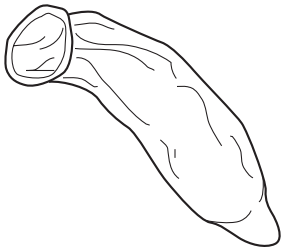

4



not to scale

What are barrier methods of birth control?

	1	2	3	4	
A	✓	✓	✗	✗	key
B	✗	✓	✓	✗	✓ = yes
C	✗	✗	✓	✓	✗ = no
D	✗	✓	✗	✓	

33 In one species of plant, the allele for red-coloured fruit is dominant and is represented by the letter R. The allele for white-coloured fruit is recessive and is represented by the letter r.

View solution

Two plants that are heterozygous for fruit colour are crossed.

What are the possible genotypes of the offspring plants from this cross?

A RR, Rr and rr

B all Rr

C all rr

D Rr and rr only

34 Which phenotype shows discontinuous variation in humans?

View solution

A foot length

B height

C sex

D weight

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35 What can increase the genetic variation in a species?

View solution

A growth

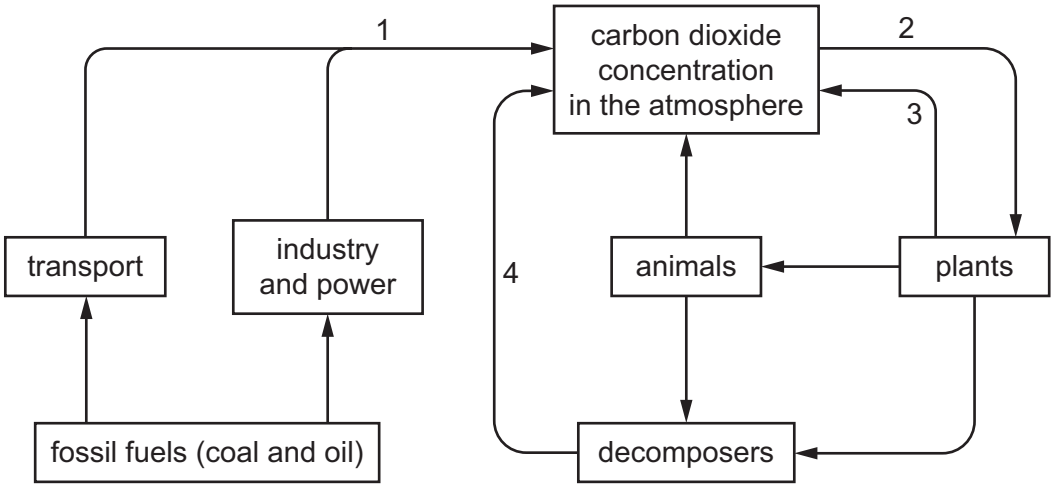
B malnutrition

C mitosis

D mutation

36 The diagram shows part of the carbon cycle.

View solution



Which processes reduce or increase carbon dioxide concentration in the atmosphere?

	reduces	increases
A	1	4
B	2	3
C	3	2
D	4	1

37 The diagram shows a food chain.

View solution

rose bush → aphids → ladybirds → spiders

A disease reduced the number of ladybirds.

What would be the likely effect of this on the numbers of aphids and spiders?

	aphids	spiders
A	decrease	decrease
B	decrease	increase
C	increase	decrease
D	increase	increase

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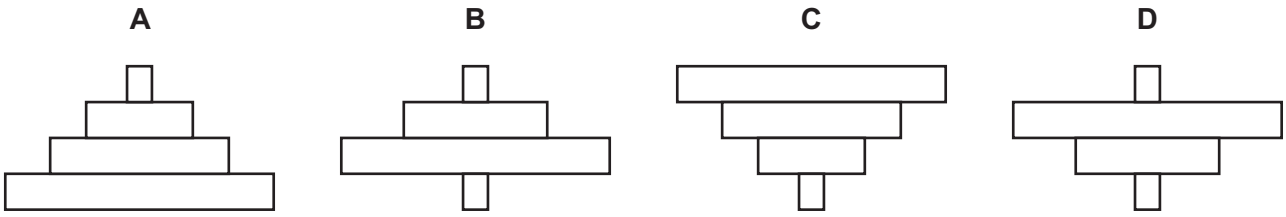
38 The block at the base of each pyramid represents the number of producers.

View solution

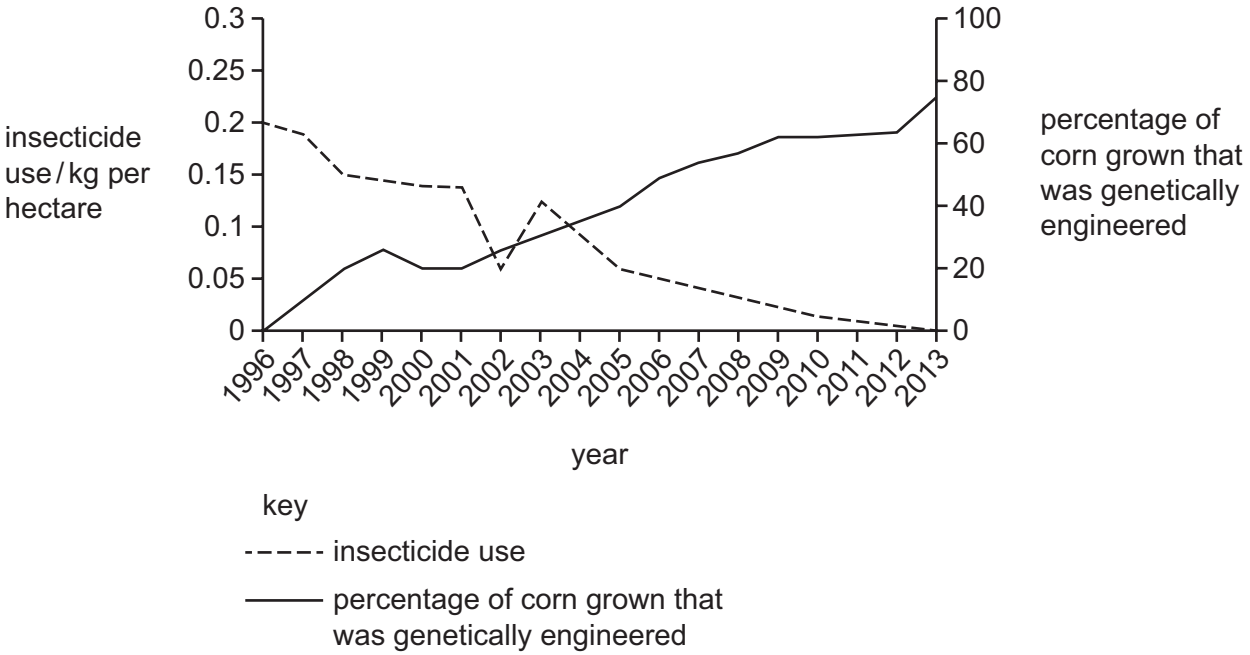
Which pyramid of numbers has more tertiary consumers than secondary consumers?



39 Corn that has been genetically engineered to be resistant to pests was developed in the 1990s.

The graph shows the change in the percentage of corn grown that was genetically engineered and the change in the mass of chemical insecticides used.

View solution



Which statement describes the data shown in the graph between 1996 and 2013?

A The percentage of corn grown that was genetically engineered increased and the use of insecticides decreased.

B The percentage of corn grown that was genetically engineered increased and the use of insecticides increased.

C The percentage of corn grown that was genetically engineered decreased and the use of insecticides decreased.

D The percentage of corn grown that was genetically engineered decreased and the use of insecticides increased.

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40 What could be undesirable effects of deforestation?

View solution

1 extinction of species

2 increased flooding

3 reduction of atmospheric carbon dioxide

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

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