Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/13**

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.

IB22 11_0610_13/4RP

1 Which process provides an organism with the raw materials needed for tissue repair?

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?

A a genus

B a kingdom

C a species

D an organ system

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

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.

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 What is an example of a tissue?

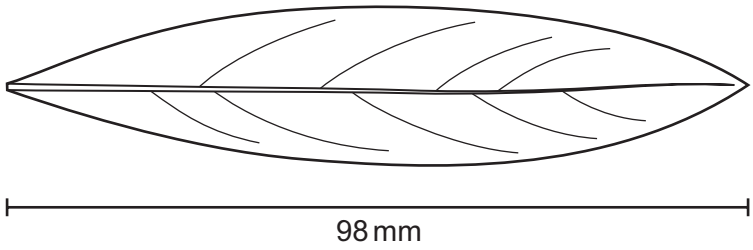
A a chloroplast

B the palisade mesophyll

C a neurone

D the pancreas

6 The diagram shows a leaf which has been drawn at a magnification of ×7.



What was the actual length of the leaf?

A 11 mm **B** 14 mm **C** 19 mm **D** 98 mm

7 Which statement is about osmosis?

A movement of water through a partially permeable membrane

B movement of sodium ions from a high concentration to a low concentration

C movement of sodium ions from a low concentration to a high concentration

D requires energy from respiration

8 Which row describes active transport?

	direction of movement	particles move through a cell membrane	energy required
A	from a region of higher concentration to a region of lower concentration	yes	no
B	from a region of higher concentration to a region of lower concentration	no	no
C	from a region of lower concentration to a region of higher concentration	no	yes
D	from a region of lower concentration to a region of higher concentration	yes	yes

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

A Benedict's solution

B biuret solution

C DCPIP

D iodine solution

[Turn over

10 The equation shows the digestion of protein to amino acids.

$$\text{protein} \xrightarrow{\text{protease}} \text{amino acids}$$

In the equation, what is protease?

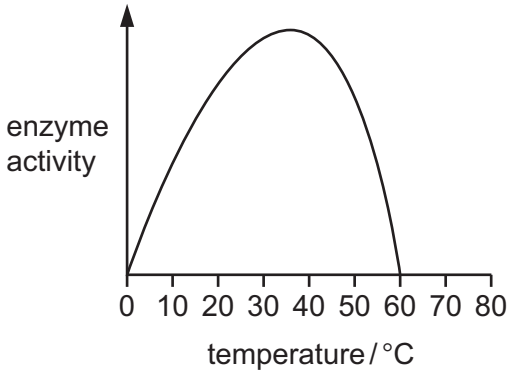
A a catalyst

B a product

C a solvent

D a substrate

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



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.

Which substance is obtained from the soil?

A carbon dioxide

B chlorophyll

C glucose

D mineral ions

13 What is the word equation for photosynthesis?

A carbon dioxide + oxygen → glucose + water

B carbon dioxide + water → glucose + oxygen

C oxygen + glucose → carbon dioxide + water

D oxygen + water → glucose + carbon dioxide

14 What is the order of the processes that take place when food is eaten?

A digestion → absorption → assimilation → ingestion → egestion

B digestion → ingestion → egestion → absorption → assimilation

C ingestion → digestion → egestion → assimilation → absorption

D ingestion → digestion → absorption → assimilation → egestion

15 Dental decay is caused when bacteria break down sugars and produce acids.

In which order are the parts of the teeth damaged by acid?

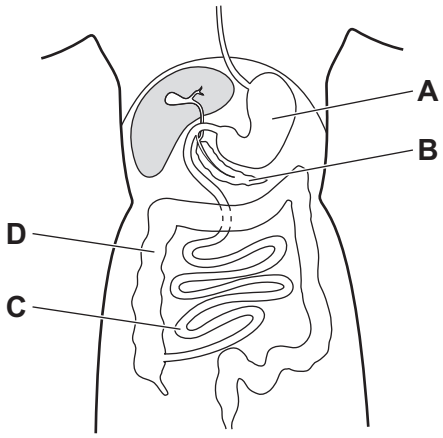
A dentine → pulp → enamel

B enamel → dentine → pulp

C enamel → pulp → dentine

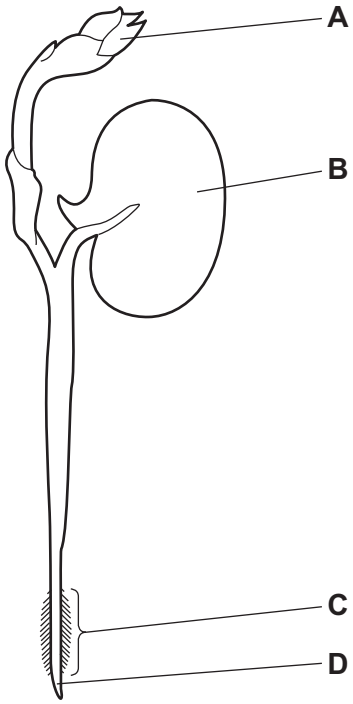
D pulp → dentine → enamel

16 Where is most digested food absorbed?



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

Where is most water absorbed?



18 Which process occurs during transpiration?

A evaporation of water from the xylem

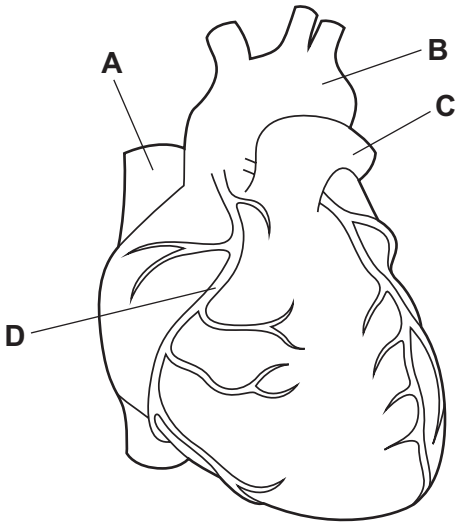
B loss of water by osmosis from the guard cells

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

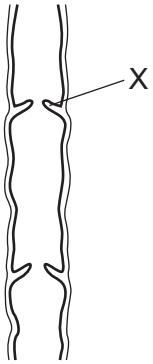
D movement of water vapour through the stomata by diffusion

19 The diagram shows the outside of a human heart.

Which structure is a coronary artery?



20 The diagram shows a section of a human vein.



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.

Which word describes *Campylobacter*?

A antibody

B disease

C pathogen

D symptom

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

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

23 Which actions use energy released from respiration?

1 muscle contraction

2 protein synthesis

3 cell division

4 transmitting nerve impulses

A 1, 2, 3 and 4

B 1, 2 and 4 only

C 2 and 3 only

D 3 and 4 only

[Turn over

24 What is the word equation for anaerobic respiration in muscle cells?

A glucose + oxygen → lactic acid

B glucose → carbon dioxide

C glucose + carbon dioxide → alcohol

D glucose → lactic acid

25 Which statement about the formation of urea is correct?

A Urea is formed in the kidneys from excess amino acids.

B Urea is formed in the liver from excess amino acids.

C Urea is formed in the kidneys from excess fatty acids.

D Urea is formed in the liver from excess fatty acids.

26 A person moves from a place with dim light to a place with bright light.

What will happen to the pupils in the person's eyes?

	size	controlled by
A	decreases	cornea
B	increases	cornea
C	decreases	iris
D	increases	iris

27 Which endocrine gland secretes insulin?

A adrenal

B ovary

C pancreas

D testis

28 Which factors affect the growth of plants?

A gravity and light only

B gravity, light and temperature

C gravity and temperature only

D light and temperature only

29 The table shows the recommended daily amounts (RDA) of some nutrients for a person with special dietary requirements, and their actual intake of those nutrients.

dietary component	RDA for this person	actual intake
carbohydrate / g	260	265
protein / g	44	41
fat / g	33	32
vitamin C / mg	60	5
vitamin D / μg	10	11
fibre / g	26	27
iron / mg	15	15
calcium / mg	700	710

What would the person be at risk of developing if they continued with the same daily intake of these nutrients?

A constipation

B coronary heart disease

C obesity

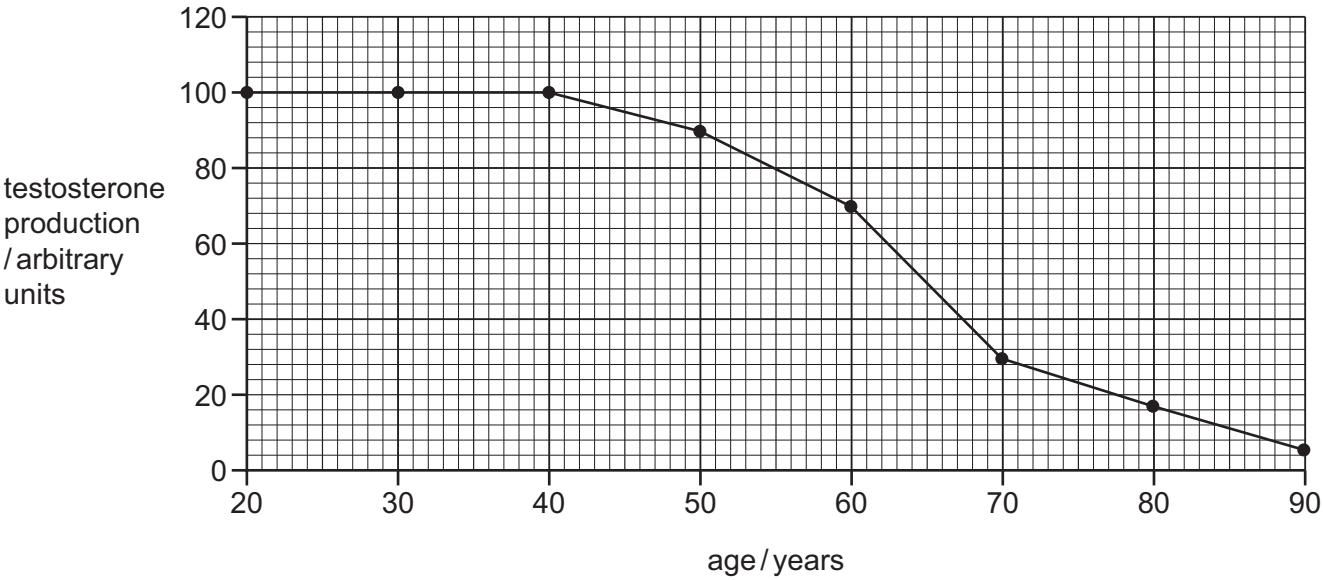
D scurvy

30 What is a possible order of events during labour and birth?

	1st	2nd	3rd	4th
A	delivery of the afterbirth	baby passes through the vagina	amniotic sac breaks	cervix dilates
B	baby passes through the vagina	umbilical cord is cut	amniotic sac breaks	uterus muscles begin to contract
C	uterus muscles begin to contract	cervix dilates	amniotic sac breaks	baby passes through the vagina
D	uterus muscles begin to contract	baby passes through the vagina	delivery of the afterbirth	cervix dilates

[Turn over

31 The graph shows the decline in testosterone production in some men as they get older.



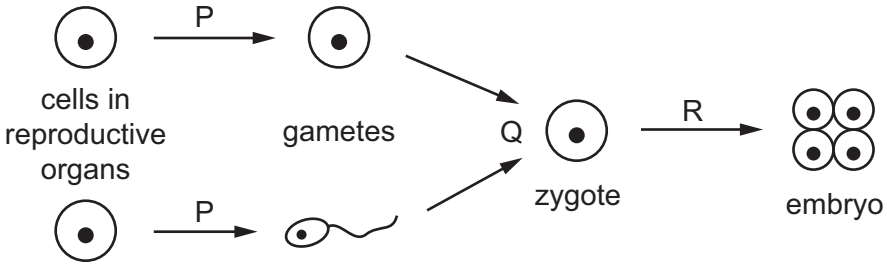
At which age is testosterone production at 50 arbitrary units?

A 50 **B** 60 **C** 65 **D** 90

32 What is the most effective barrier method of birth control shown in the table?

	method	percentage effectiveness
A	male condom	98
B	diaphragm	95
C	femidom	95
D	vasectomy	99

33 The diagram represents processes in sexual reproduction.



Which processes are represented by the letters P, Q and R?

	P	Q	R
A	meiosis	growth	meiosis
B	meiosis	fertilisation	mitosis
C	mitosis	growth	meiosis
D	mitosis	fertilisation	mitosis

34 A fruit grower wants to develop a new disease-resistant fig tree with tastier fruit.

She crosses two fig trees and plants the seeds that are produced.

She chooses the best plant that grows from the seeds and takes cuttings from it. The cuttings grow into trees that are identical to the chosen plant.

Which processes are involved?

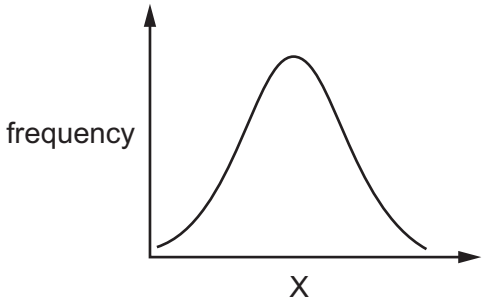
A selective breeding, involving sexual reproduction followed by asexual reproduction

B natural selection involving selection of individuals best adapted to the environment

C sexual reproduction resulting in natural selection

D asexual reproduction resulting in selective breeding

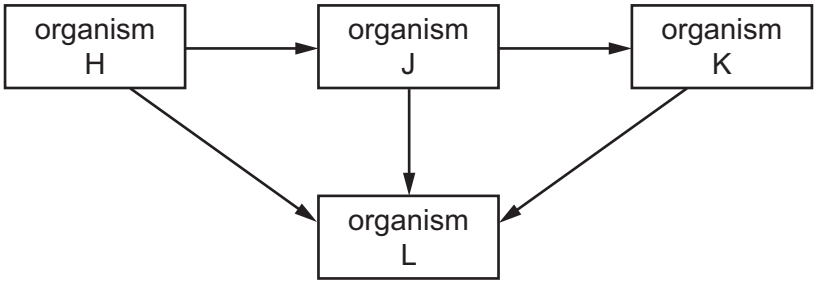
35 The graph shows the frequency of the human characteristic X.



Which characteristics can be represented by X?

	height	sex	weight
A	yes	no	no
B	no	yes	yes
C	yes	no	yes
D	no	yes	no

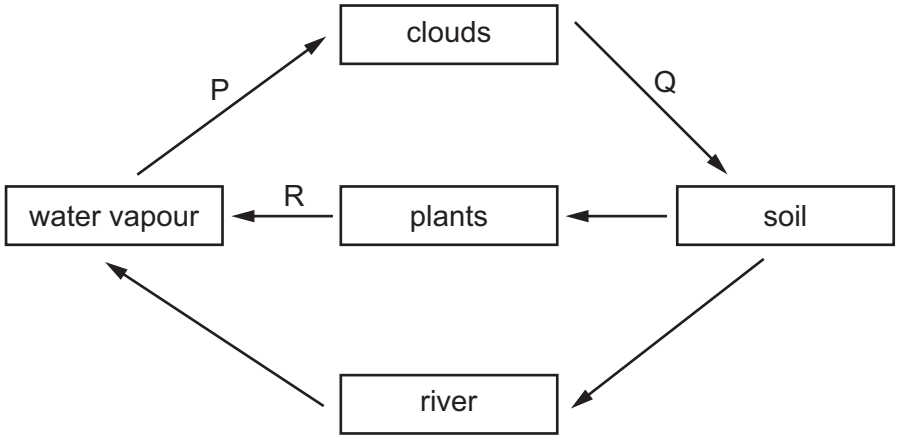
36 Letters H, J, K and L show the organisms that make up a simple food web.



Which row identifies the types of organism shown in the food web?

	carnivore	decomposer	producer
A	H	L	K
B	J	K	H
C	K	L	H
D	L	J	K

37 The diagram shows part of the water cycle.

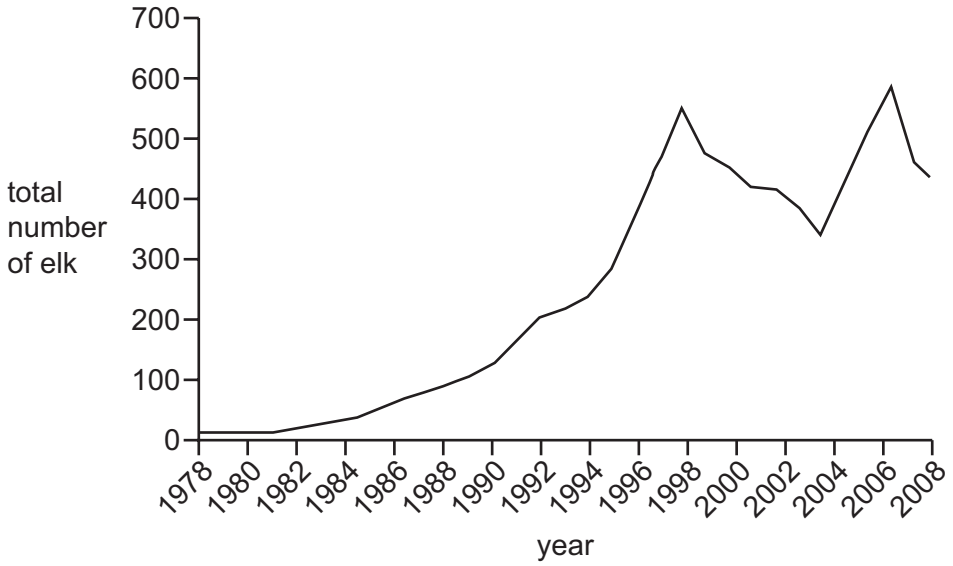


Which row identifies the different parts of the water cycle?

	P	Q	R
A	condensation	transpiration	precipitation
B	condensation	precipitation	transpiration
C	evaporation	transpiration	precipitation
D	evaporation	precipitation	transpiration

[Turn over

38 Elk are mammals and they are herbivores. The graph shows the total number of elk in a national park between 1978 and 2008.



What is a possible explanation for the change in the elk population between 1978 and 1992?

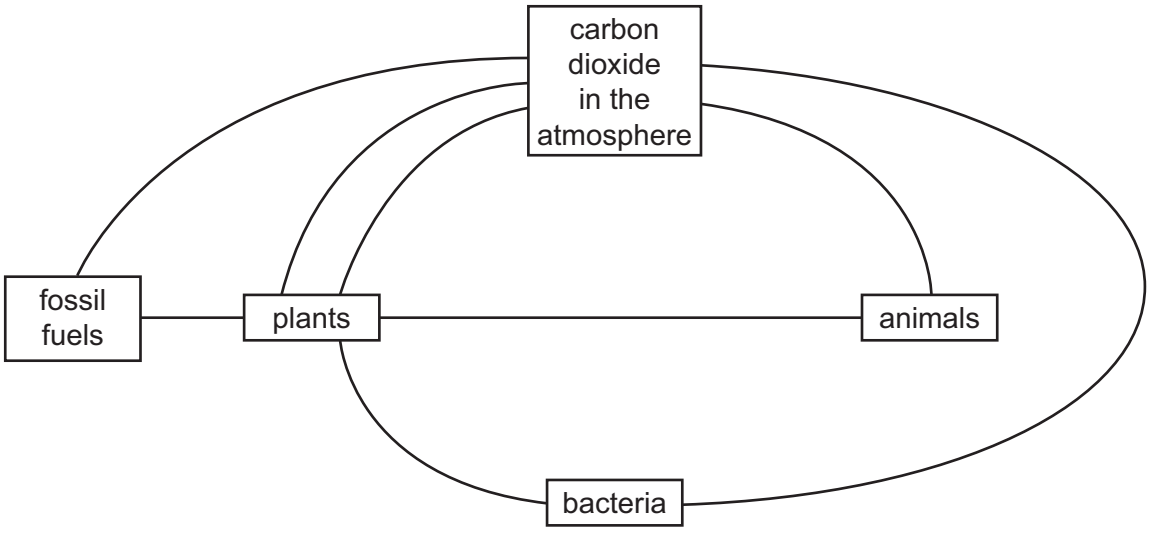
A decrease in disease

B decrease in food source

C increase in hunting

D increase in predation

39 The diagram shows part of the carbon cycle. The arrowheads are missing from the diagram so the direction of movement of carbon is not shown.



How many arrows should point **towards** the box labelled carbon dioxide in the atmosphere?

A 1 **B** 2 **C** 4 **D** 5

40 What are undesirable effects of deforestation?

A a decrease in soil erosion and a decrease in carbon dioxide in the atmosphere

B a decrease in soil erosion but an increase in carbon dioxide in the atmosphere

C an increase in soil erosion but a decrease in carbon dioxide in the atmosphere

D an increase in soil erosion and an increase in carbon dioxide in the atmosphere

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