Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/11**

Paper 1 Multiple Choice (Core) **May/June 2023**

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.

IB23 06_0610_11/3RP
© UCLES 2023

[Turn over

1 What are characteristics of all organisms?

A egestion and excretion

B egestion and nutrition

C excretion and nutrition

D excretion and photosynthesis

2 The scientific name for the golden eagle is *Aquila chrysaetos.*

What is the genus of the golden eagle?

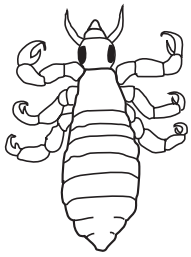
A *Aquila*

B *chrysaetos*

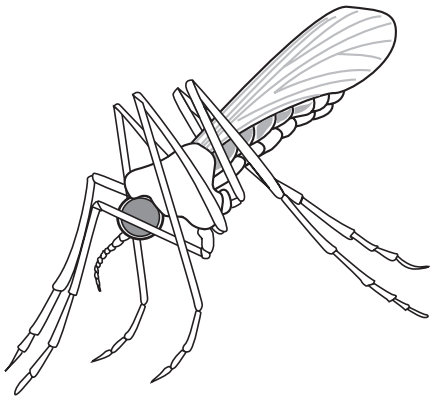
C eagle

D golden

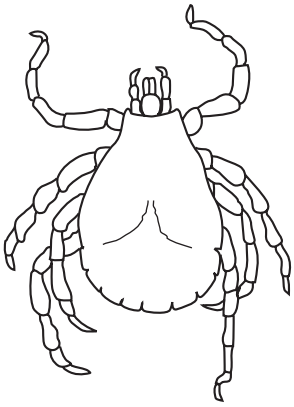
3 The diagram shows four arthropods.



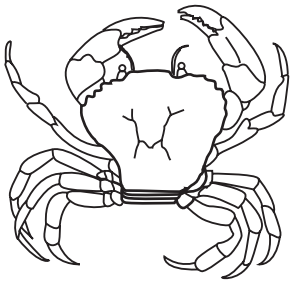
Pediculus ×20



Anopheles ×10



Dermacentor ×7



Carcinus ×0.5

How many of these arthropods are insects?

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

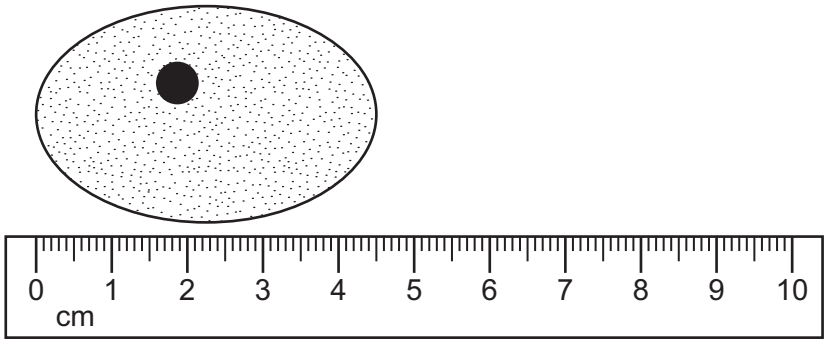
© UCLES 2023

4 Which row shows structures that are present in both root hair cells and palisade mesophyll cells?

	cell wall	chloroplasts	cytoplasm	vacuole
A	✓	✓	✓	✗
B	✗	✓	✓	✓
C	✓	✗	✓	✓
D	✓	✓	✗	✓

key
✓ = present
✗ = absent

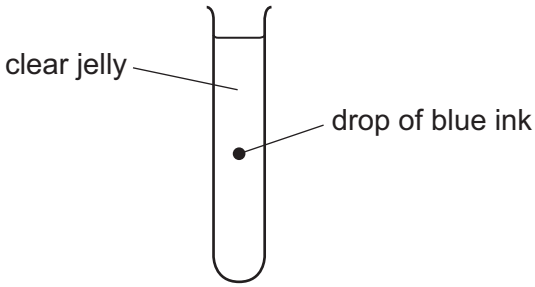
5 The diagram shows a cell at ×1500 magnification.



What is the actual size of the cell?

A 0.003 mm **B** 0.03 mm **C** 33 mm **D** 333 mm

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?

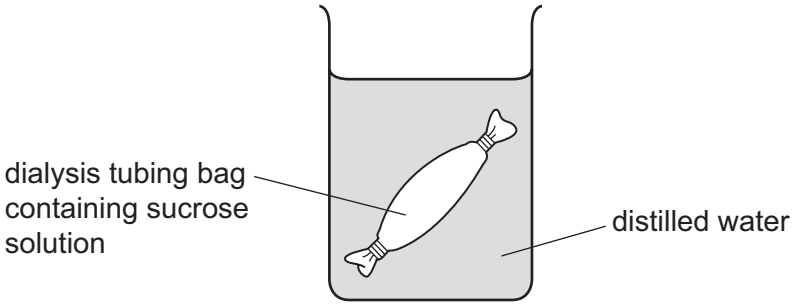
A active transport

B catalysis

C diffusion

D osmosis

7 The diagram shows some of the apparatus used in an osmosis investigation.



In this investigation a dialysis tubing bag was filled with sucrose solution, sealed and weighed.

The dialysis tubing bag was then immersed in distilled water for one hour.

After one hour the dialysis tubing bag was removed from the beaker, the surface was dried and the bag was reweighed.

Which row explains what will happen during the investigation?

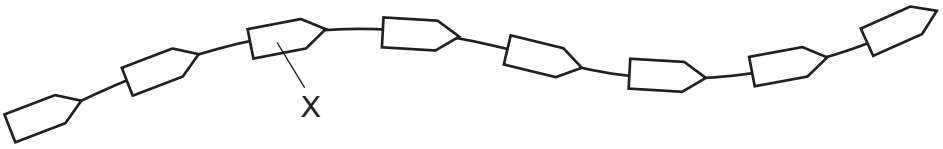
	mass of the dialysis tubing bag at the end of the investigation	net movement of sucrose molecules	net movement of water molecules
A	decreased	none	out of the bag
B	decreased	into the bag	out of the bag
C	increased	none	into the bag
D	increased	out of the bag	into the bag

8 Which row describes active transport of ions?

	direction of movement of ions	requires energy from respiration
A	from high concentration to low concentration	yes
B	from low concentration to high concentration	no
C	from high concentration to low concentration	no
D	from low concentration to high concentration	yes

© UCLES 2023

9 The diagram shows part of a protein molecule.



What does X represent?

A amino acid

B fatty acid

C glycerol

D sugar

10 What is true of **all** enzymes?

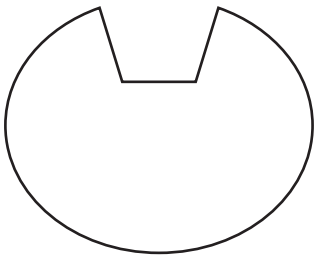
	they are sugars	they are most effective at pH 7
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key

✓ = yes

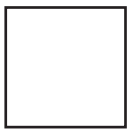
✗ = no

11 What is the substrate for enzyme X?

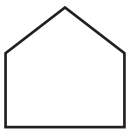


enzyme X

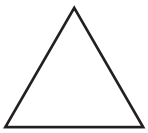
A



B



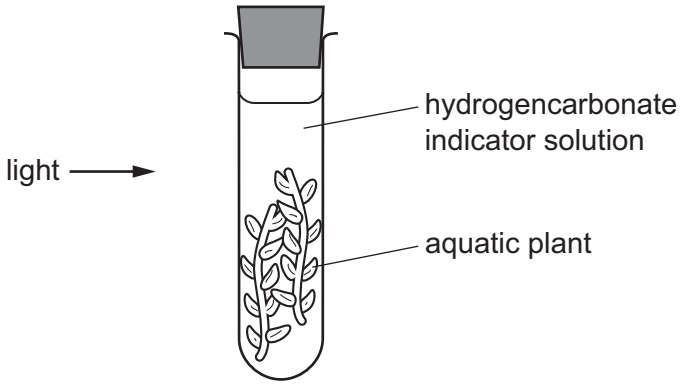
C



D



12 An experiment is set up to investigate gas exchange in aquatic plants.



The hydrogencarbonate indicator solution is orange at the start.

Which colour is it after three hours?

A blue-black

B orange

C purple

D yellow

13 How are most leaves adapted for photosynthesis?

A They have a large surface area and are thick.

B They have a large surface area and are thin.

C They have a small surface area and are thick.

D They have a small surface area and are thin.

14 The haemoglobin concentration in the blood of a person is $80\,g/dm^3$. The accepted normal concentration is $120\,g/dm^3$ or above.

Which substance may be lacking in their diet?

A calcium

B fats

C fibre

D iron

© UCLES 2023

15 Which statement about physical digestion is correct?

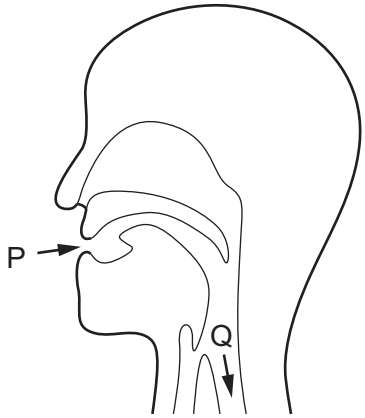
A It increases the surface area of food.

B It involves enzymes.

C It takes place in the mouth only.

D It produces smaller molecules.

16 Solid food enters the mouth at P and enters the oesophagus at Q.



How does the food at Q differ from the food at P?

A It contains less fibre.

B It contains less water.

C It contains less protein.

D It contains less starch.

17 Which row shows the functions of xylem and phloem?

	transports amino acids	transports mineral ions	transports sucrose
A	phloem	xylem	phloem
B	xylem	xylem	phloem
C	xylem	phloem	xylem
D	phloem	phloem	xylem

18 What is the effect on a plant of **not** having any root hairs?

A The plant absorbs less water from the soil.

B The plant absorbs more water from the soil.

C The plant loses water to the soil.

D The plant loses mineral ions to the soil.

© UCLES 2023

[Turn over

19 Which statements describe how the structures in the circulatory system function?

1 a muscular pump to push blood into vessels

2 valves to ensure one-way blood flow

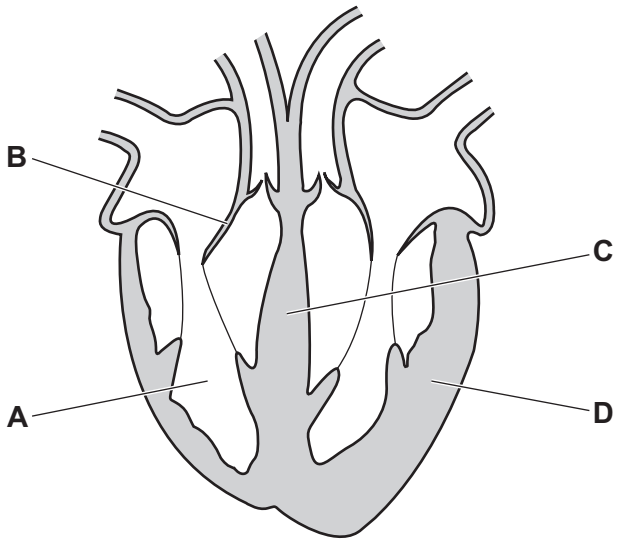
3 veins to take blood away from the heart

4 vessels to return blood to the heart

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

20 The diagram shows a section through the heart.

Which part is the septum?



21 What is an example of good personal hygiene in the kitchen?

A cooking food at a high temperature

B disposing of waste food in sealed containers

C storing uncooked meat in a fridge

D washing hands before eating food

22 What is the pathway of expired air as it travels out of the body?

A alveoli → trachea → bronchiole → bronchi

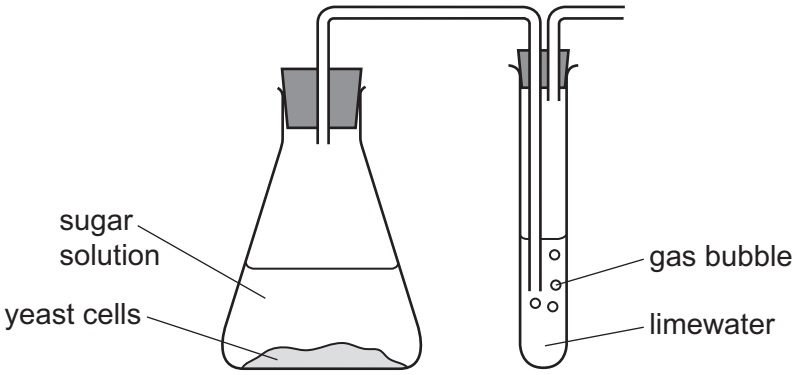
B alveoli → bronchiole → bronchi → trachea

C trachea → alveoli → bronchiole → bronchi

D trachea → bronchi → bronchiole → alveoli

© UCLES 2023

23 The diagram shows the activity of some yeast cells in a sugar solution.



Which statement explains what happens to the limewater?

A The limewater changes from colourless to cloudy due to the presence of carbon dioxide.

B The limewater changes from colourless to cloudy due to the presence of oxygen.

C The limewater changes from cloudy to colourless due to the presence of carbon dioxide.

D The limewater changes from cloudy to colourless due to the presence of oxygen.

24 What is the word equation for aerobic respiration?

A carbon dioxide + water → glucose + oxygen

B glucose + oxygen → carbon dioxide + water

C glycogen + oxygen → carbon dioxide + water

D water + oxygen → glucose + carbon dioxide

25 Which part of the body excretes urea, excess water and excess ions?

A gall bladder

B heart

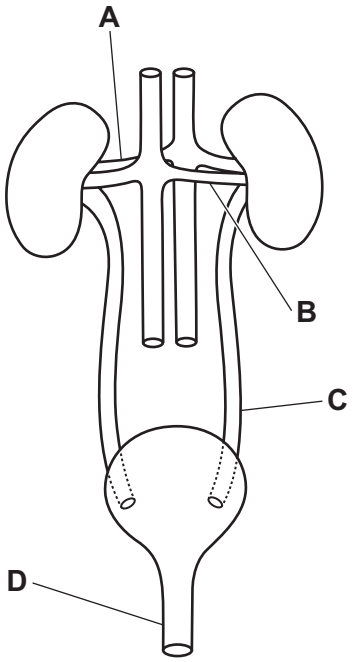
C kidney

D lungs

© UCLES 2023

26 The diagram shows the kidneys and associated organs.

Which label is the ureter?



27 What is the name of the junction between two neurones?

A effector

B receptor

C gland

D synapse

28 Which statement about adrenaline is correct?

A It decreases the heart rate.

B It decreases the diameter of the pupil.

C It increases the breathing rate.

D It is made in the pancreas.

© UCLES 2023

29 Which words complete the statements?

Plant growth towards light is called .....1..... .

When a plant shoot grows towards a light source, it is showing a .....2..... to light.

Light acts as the .....3..... .

	1	2	3
A	movement	response	stimulus
B	movement	stimulus	response
C	phototropism	response	stimulus
D	phototropism	stimulus	response

30 Which statements about antibiotics are correct?

1 Antibiotics can be used to treat bacterial infections.

2 Antibiotics can be used to treat viral infections.

3 Antibiotics are **not** effective against resistant bacteria.

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

31 Which statement about sexual reproduction is correct?

A Fertilisation is involved.

B Zygotes fuse.

C Offspring are always genetically identical.

D One female gamete fuses with many male gametes.

32 Which row about asexual reproduction is correct?

	number of parents	offspring identical to parents	offspring identical to each other
A	one	no	yes
B	one	yes	yes
C	two	no	no
D	two	yes	no

33 What is defined as a length of DNA that codes for a protein?

A amino acid

B antibody

C chromosome

D gene

34 A man has three sons.

What is the chance of his next child being a daughter?

A 0% **B** 25% **C** 50% **D** 100%

35 Which term is a genetic change?

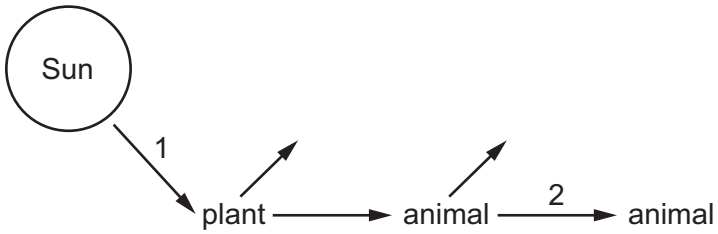
A allele

B genotype

C mutation

D phenotype

36 The diagram shows energy flow from the Sun, through a food chain and into the environment.



What is the form of energy for each numbered arrow?

	stage 1	stage 2
A	heat	chemical
B	heat	kinetic
C	light	chemical
D	light	kinetic

37 In a pyramid of numbers, what does the top of the pyramid represent?

A carnivores

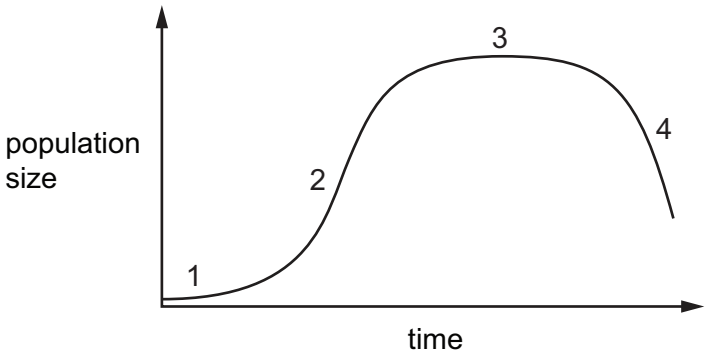
B decomposers

C herbivores

D Sun

38 A few yeast cells were placed in a container of nutrient solution.

The graph shows how their population size changed over time.



Which row shows when the reproduction rate was greater than the death rate for the numbered phases on the graph?

	reproduction rate greater than death rate			
	1	2	3	4
A	✓	✓	✓	✗
B	✓	✓	✗	✗
C	✓	✗	✗	✗
D	✗	✓	✓	✓

key

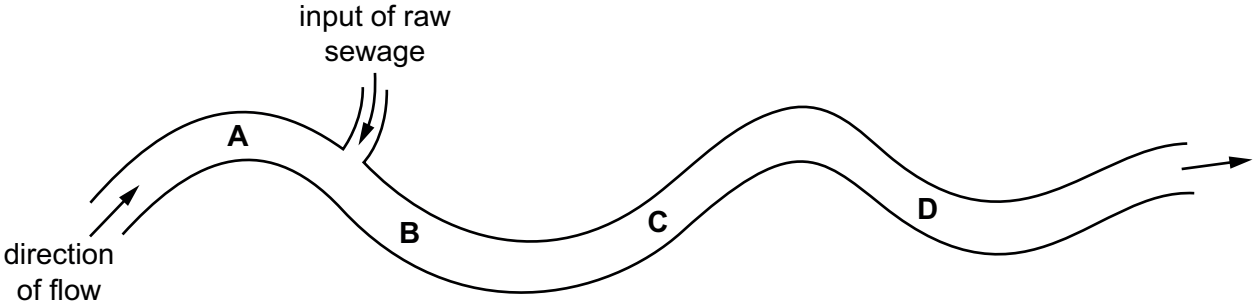
✓ = yes

✗ = no

39 The bloodworm is an organism that is found in heavily polluted water.

The diagram shows where raw sewage flows into a river.

Where would there be fewest bloodworms?



40 Which statement about genetic modification is correct?

A It involves choosing which individual organisms are used for breeding.

B It is always done using genes from the same species.

C It produces a new combination of genes.

D It produces exact copies of individual organisms.

© UCLES 2023

BLANK PAGE

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 Assessment International Education Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download at www.cambridgeinternational.org after the live examination series.

Cambridge Assessment International Education is part of Cambridge Assessment. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which is a department of the University of Cambridge.

© UCLES 2023