Cambridge Assessment International Education

Cambridge IGCSE™

BIOLOGY **0610/13**

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

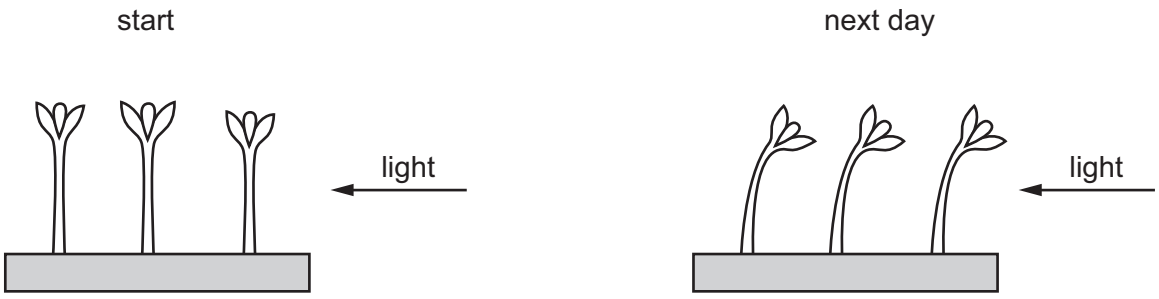
INFORMATION

- 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.

© UCLES 2020

1 The diagram shows what happened in an experiment with plant seedlings.



Which characteristic of living things made the seedlings grow towards the light?

A excretion

B nutrition

C respiration

D sensitivity

2 A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

A genus and species

B kingdom and genus

C kingdom and species

D variety and genus

3 Explorers have found an unknown animal living in a rainforest. The animal

- lives on land but has also been seen in water
- lays soft-shelled eggs on land
- does not have gills
- has scaly skin
- is 1.0 m long
- does not produce milk.

To which group is the animal most likely to belong?

A amphibians

B arthropods

C mammals

D reptiles

© UCLES 2020

4 Onion plant cells swell but do not burst when placed in distilled water.

Which cell component prevents the onion plant cells from bursting?

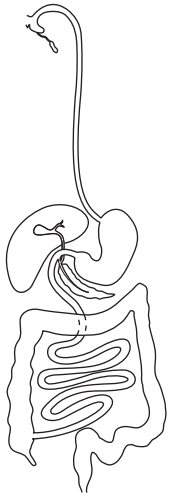
A cell membrane

B cell wall

C nucleus

D vacuole

5 The diagram shows part of the human body.



Which level of organisation does this diagram show?

A a cell

B an organism

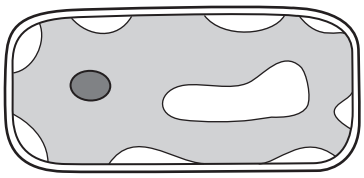
C an organ system

D a tissue

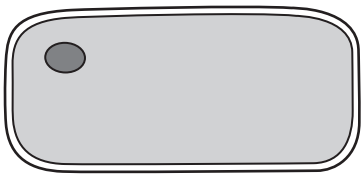
© UCLES 2020

6 Which diagram shows the appearance of a plant cell several minutes after it has been placed in a concentrated solution of sugar?

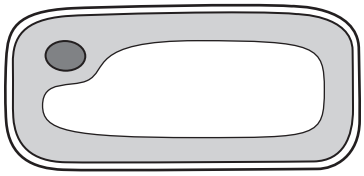
A



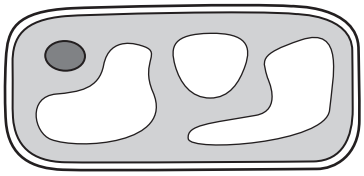
B



C



D



7 Which statement about active transport is correct?

A Particles move into cells using energy released by photosynthesis.

B Particles move across a cell wall without using energy.

C Particles move from a region of higher concentration to a region of lower concentration.

D Particles move across a cell membrane using energy released by respiration.

8 Which food-testing solution shows a positive result when it turns from blue to purple?

A Benedict's solution

B biuret solution

C ethanol

D iodine solution

9 Which statement about enzyme-controlled reactions is correct?

A During the reaction, a substrate changes into a product.

B The enzyme is slowly broken down during the reaction.

C The higher the pH the faster the reaction.

D The product is gradually used up during the reaction.

© UCLES 2020

10 Why do plants need nitrate ions?

A to make amino acids

B to make fats

C to make glucose

D to make starch

11 Which substance found in a healthy diet helps to prevent constipation?

A fat

B fibre

C minerals

D vitamins

12 The table shows the percentage of the daily recommended intake of nutrients in a serving of four foods.

Which food would be the best choice to prevent scurvy?

	percentage of daily recommended intake in a serving of food			
	calcium	iron	vitamin C	vitamin D
A	71	1	0	6
B	24	11	2	73
C	3	3	72	0
D	1	72	1	0

13 After passing through the root hair cells of a plant, what is the next tissue through which water passes?

A cortex

B epidermis

C mesophyll

D xylem

© UCLES 2020

[Turn over

14 From which part of a leaf does most water evaporate during transpiration?

A the cuticle

B the guard cells

C the spongy mesophyll cells

D the xylem vessels

15 Which blood vessel carries blood to the muscle of the heart?

A coronary artery

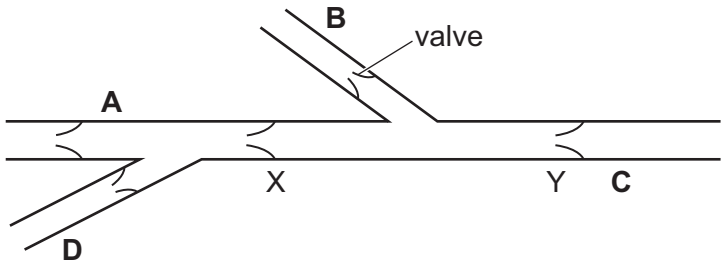
B pulmonary artery

C renal vein

D vena cava

16 The diagram shows some veins in the human arm and the valves that they contain.

If blood is squeezed out of section X–Y, where should pressure be placed on a vein to stop blood flowing into this section again?



17 What is a chemical barrier to pathogens?

A nose hairs

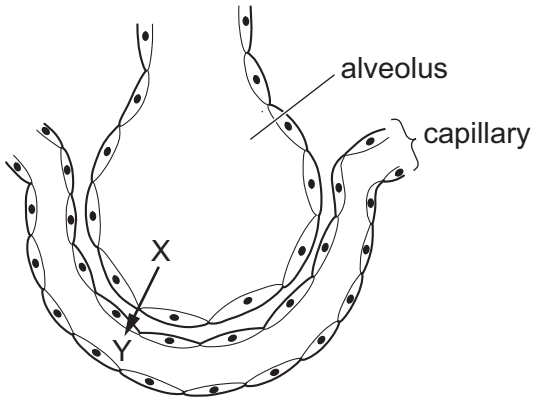
B skin

C stomach acid

D white blood cells

© UCLES 2020

18 The diagram shows an alveolus and capillary in a human lung.



Which row shows the correct gas and concentrations for diffusion from X to Y in normal conditions?

	at point X	at point Y
A	high concentration of carbon dioxide	low concentration of carbon dioxide
B	high concentration of oxygen	low concentration of oxygen
C	low concentration of carbon dioxide	high concentration of carbon dioxide
D	low concentration of oxygen	high concentration of oxygen

19 Which examples of respiration produce carbon dioxide?

	aerobic respiration in human muscles	anaerobic respiration in human muscles	anaerobic respiration in yeast
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✓
D	✓	✓	✓

key
✓ = yes
✗ = no

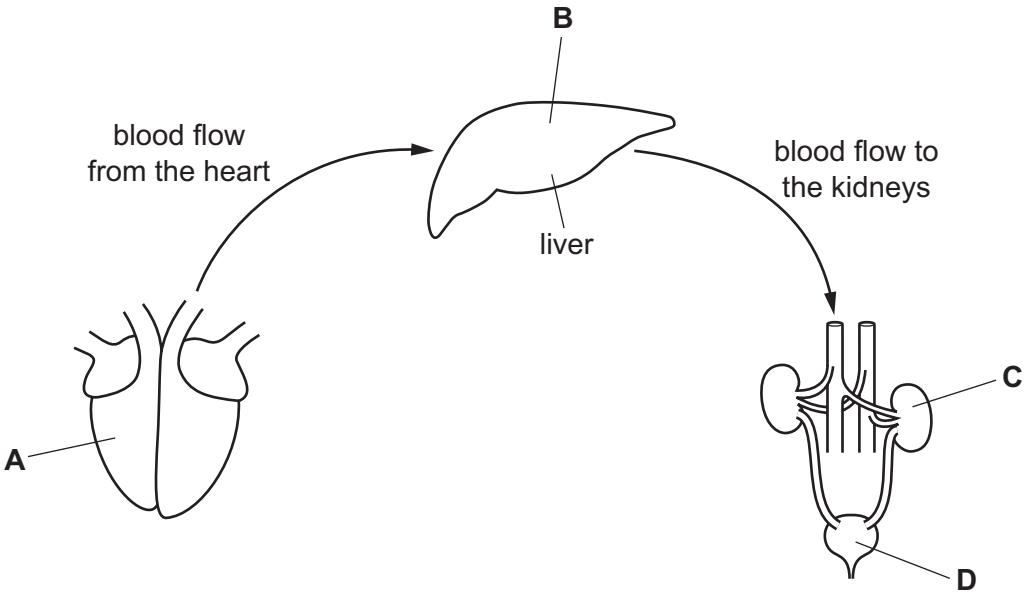
20 In which conditions do the leaves of a green plant photosynthesise?

	bright light	darkness
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

key
✓ = yes
✗ = no

21 The diagram represents the flow of blood from the heart, through the liver and towards the kidneys.

Where is urea made?



22 When a man steps on a sharp object he moves his foot away very quickly.

In which part of his body are the effector cells involved in this action?

A brain

B muscle

C skin

D spinal cord

23 Which row matches structures in the eye with their functions?

	focuses light	refracts light	sensitive to light
A	cornea	iris	retina
B	retina	lens	iris
C	iris	retina	lens
D	lens	cornea	retina

© UCLES 2020

24 Which organ produces oestrogen?

A heart

B lung

C ovary

D oviduct

25 What is meant by the term phototropism?

A absorbing mineral ions

B absorbing water

C directional growth in response to gravity

D directional growth in response to light

26 Drugs are substances that are taken into the body.

Which statement also applies to the definition of a drug?

A always slow down chemical reactions

B always speed up chemical reactions

C are only used to destroy bacteria

D modify or affect chemical reactions

27 What does the drug heroin act as?

A a stimulant

B a depressant

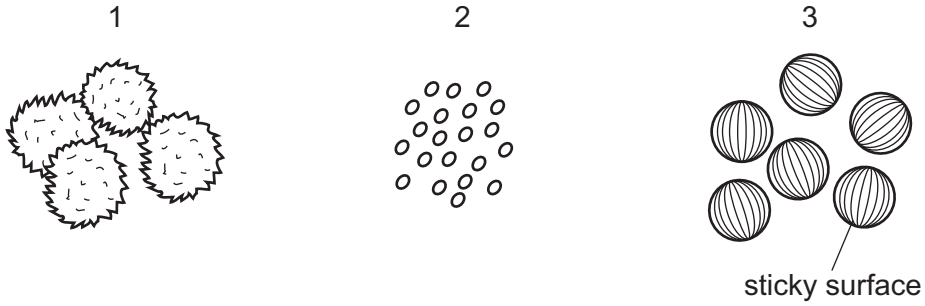
C an antibiotic

D a nutrient

© UCLES 2020

[Turn over

28 The diagrams show pollen grains from three different species of plant as they appear under the microscope. The diagrams are all to the same scale.

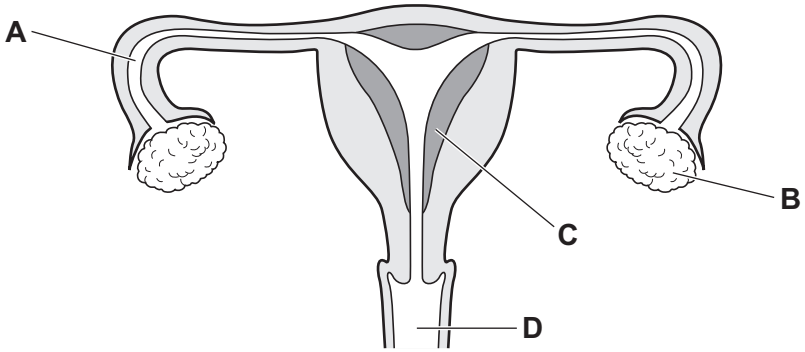


Which pollen grains are most likely to be carried by the wind?

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

29 The diagram shows the human female reproductive system.

In which structure does fertilisation occur?



30 Which disease is an example of an STI?

A cholera

B COPD

C HIV

D lung cancer

31 Fur colour in cats is an observable feature.

Which word is used to describe an observable feature?

A allele

B genotype

C heterozygous

D phenotype

© UCLES 2020

32 Which row shows the sex chromosomes in the body cells and in the gametes of a woman?

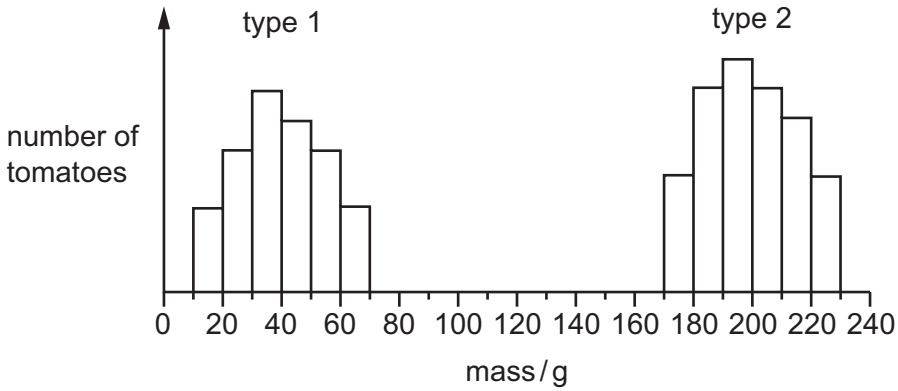
	body cells	gametes
A	XX	all X
B	XX	all XX
C	XY	X or Y
D	XY	all XY

33 In mice, the allele for black hair is dominant to the allele for brown hair.

What proportion of offspring will have brown hair if a cross is made between a homozygous black mouse and a heterozygous black mouse?

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

34 The graph shows the masses of two different types of tomato.



What can be concluded from the graph?

A Genes do not affect the mass of tomatoes.

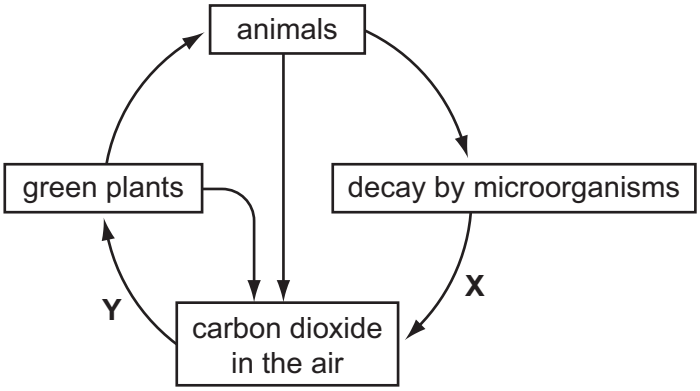
B Type 1 tomatoes show continuous variation.

C Type 2 tomatoes are sometimes smaller than type 1 tomatoes.

D Type 2 tomatoes show discontinuous variation.

© UCLES 2020

35 The diagram shows part of the carbon cycle.



What do **X** and **Y** represent?

	X	Y
A	photosynthesis	respiration
B	photosynthesis	decomposition
C	respiration	decomposition
D	respiration	photosynthesis

36 The diagram shows a food chain in a rock pool.

seaweed → whelks → crabs → seagulls

What will happen if the number of secondary consumers increases?

There will be

A fewer crabs.

B fewer seagulls.

C fewer whelks.

D less seaweed.

37 What is the role of anaerobic respiration in bread-making?

A to produce alcohol to flavour the bread

B to produce gas to make the bread rise

C to release enough energy to bake the bread

D to release enough lactic acid to kill the yeast

© UCLES 2020

38 A crop plant has been genetically modified to make it resistant to herbicides.

Which is a possible disadvantage of introducing this new crop plant?

A Loss of weeds reduces competition.

B Some weeds might become resistant to the herbicide.

C The crop plant is unharmed and produces a higher yield.

D The new gene will appear in new generations of the crop.

39 Chickens are birds that are farmed to produce eggs for human consumption.

A type of chicken has been bred to lay **more** eggs.

Which method would be used to produce this type of chicken?

A asexual reproduction

B biotechnology

C natural selection

D selective breeding

40 Sewage treatment involves a number of stages. Three of the stages are listed.

1 filter beds with anaerobic microbes to digest sewage

2 screens to trap large objects

3 settlement tanks to let insoluble particles sink

What is the correct order for treating sewage?

A $1 \rightarrow 2 \rightarrow 3$ **B** $2 \rightarrow 3 \rightarrow 1$ **C** $3 \rightarrow 2 \rightarrow 1$ **D** $3 \rightarrow 1 \rightarrow 2$

© UCLES 2020

BLANK PAGE

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 the Cambridge Assessment Group. Cambridge Assessment is the brand name of the University of Cambridge Local Examinations Syndicate (UCLES), which itself is a department of the University of Cambridge.

© UCLES 2020