GradeMax

CAMBRIDGE
International Education

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BIOLOGY **0610/22**

Paper 2 Multiple Choice (Extended) **February/March 2026**

45 minutes

8694486084

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 or tape.
- 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.

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[Turn over

1 Growth is a characteristic feature of living organisms.

Which process provides the energy for growth?

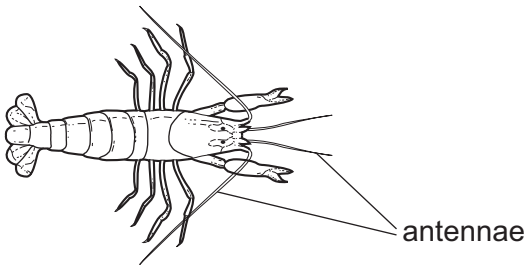
A excretion

B movement

C respiration

D sensitivity

2 The diagram shows an arthropod with two pairs of antennae.



Which group of arthropods has two pairs of antennae?

A arachnids

B crustaceans

C insects

D myriapods

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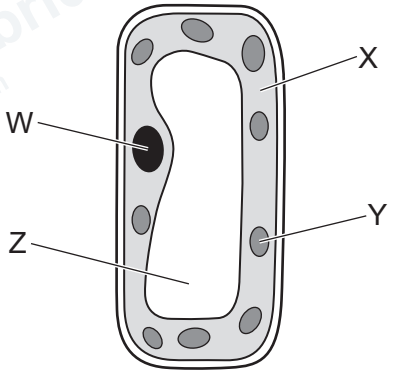
3 The diagram shows a palisade mesophyll cell from a green leaf.



In which labelled part does photosynthesis occur and where are chromosomes found?

	where photosynthesis occurs	where chromosomes are found
A	X	W
B	X	Z
C	Y	X
D	Y	W

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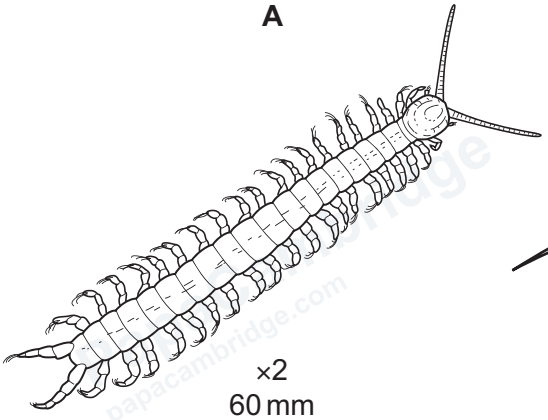
4 The diagrams show images of four organisms. The magnification and the body length of each image is shown.

Which organism has the longest **actual** body length?

A



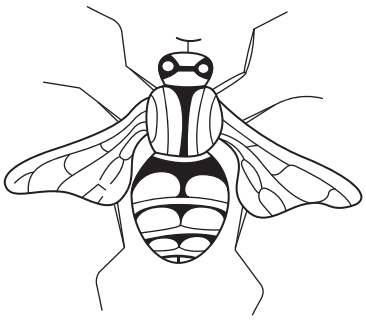
×2
60 mm

B



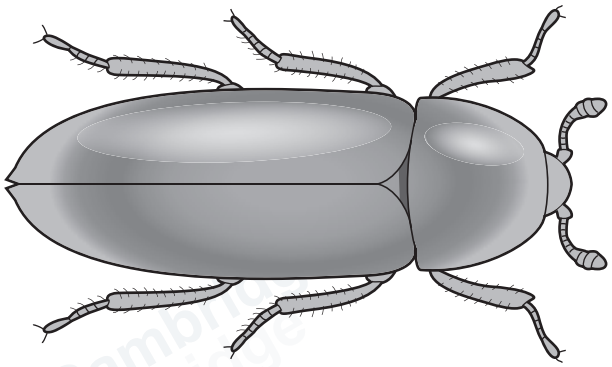
×200
100 mm

C



×1
28 mm

D

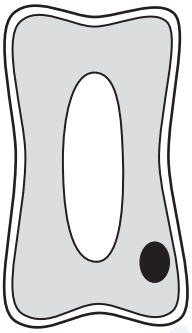


×1.5
75 mm

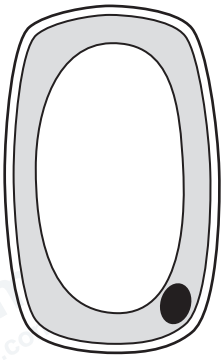
5 A plant cell was immersed in a concentrated salt solution and became plasmolysed.

Which diagram shows the plasmolysed cell?

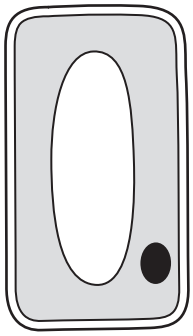
A



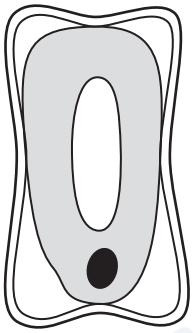
B



C



D



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6 What is an example of active transport?

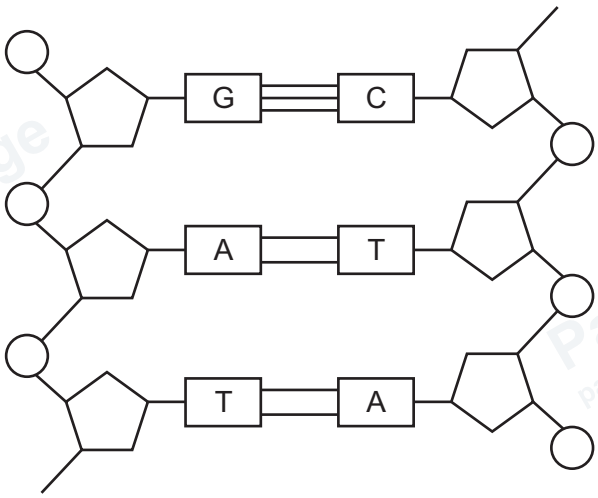
A absorption of nitrate ions from the soil

B evaporation of water from leaf mesophyll cells

C movement of oxygen from an alveolus into a blood capillary

D movement of water from the small intestine into the blood

7 Which biological molecule is shown in the diagram?



A cellulose

B DNA

C protein

D starch

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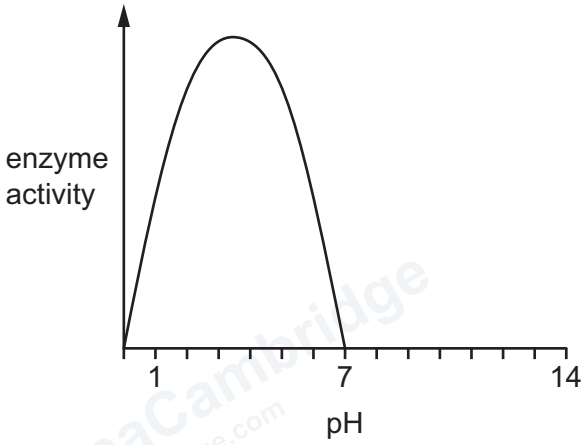
8 The graph shows the activity of an enzyme.



What does the graph show about the activity of this enzyme?

A It is destroyed by high temperatures.

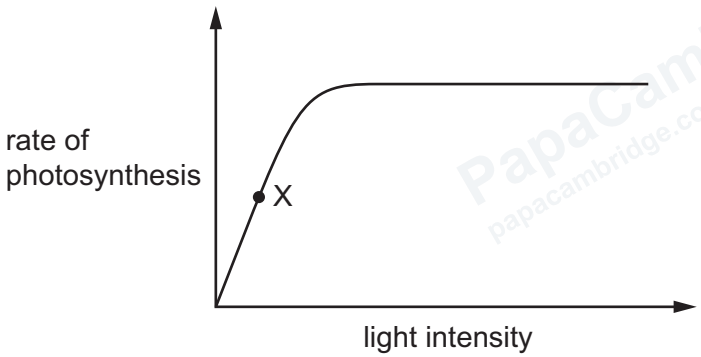
B It is most active in acidic conditions.

C It is most active in alkaline conditions.

D It is unaffected by pH.

9 A student investigated the rate of photosynthesis in tomato plants.

The graph shows the results.



Which factor does the graph indicate is limiting the rate of photosynthesis at X?

A carbon dioxide concentration

B light intensity

C oxygen concentration

D temperature

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10 Which row shows the uses of some carbohydrates in plants?

	glucose	starch	sucrose
A	cell walls	transport	energy storage
B	energy storage	cell walls	respiration
C	respiration	energy storage	transport
D	transport	respiration	cell walls

11 A child decided to eat only meat, oily fish, cheese and bread, and drink only water.

Which nutrient would be in low levels in this diet?

A calcium

B iron

C vitamin C

D vitamin D

12 Where in the alimentary canal do the enzymes pepsin, trypsin and maltase act?

	pepsin	trypsin	maltase
A	small intestine	stomach	small intestine
B	small intestine	stomach	mouth
C	stomach	small intestine	small intestine
D	stomach	small intestine	mouth

13 A decrease in which factor normally causes transpiration to increase?

A humidity

B light intensity

C number of stomata

D temperature

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14 What is an advantage of a double circulatory system in mammals?

A Blood can flow down the body on the left and up the body on the right.

B Blood can flow more slowly along the circulatory system.

C Blood pressure stays the same throughout the circulatory system.

D Oxygenated and deoxygenated blood are kept separate.

15 Atria and ventricles are chambers in the heart.

Which statements describe the relative thickness of the muscle walls of these chambers?

1 The walls of the atria are thicker than the walls of the ventricles.

2 The walls of the ventricles are thicker than the walls of the atria.

3 The wall of the left ventricle is thicker than the wall of the right ventricle.

4 The wall of the right ventricle is thicker than the wall of the left ventricle.

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

16 Which row shows how white blood cells help to defend the body against pathogens?

key

✓ = yes

✗ = no

	functions		
	antibody production	**blood clotting**	**phagocytosis**
A	✗	✗	✓
B	✗	✓	✗
C	✓	✗	✓
D	✓	✓	✗

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17 The cholera bacterium produces a toxin that causes the secretion of chloride ions into the small intestine.

Which statement describes the consequence of this?

A The water potential in the small intestine decreases, so water moves into the small intestine.

B The water potential in the small intestine decreases, so water moves out of the small intestine.

C The water potential in the small intestine increases, so water moves into the small intestine.

D The water potential in the small intestine increases, so water moves out of the small intestine.

18 Which cells protect the lungs from pathogens by secreting mucus?

A ciliated cells

B goblet cells

C lymphocytes

D memory cells

19 Which row describes anaerobic respiration in humans?

	carbon dioxide produced	**oxygen needed**	**amount of energy released compared to aerobic respiration**
A	yes	yes	high
B	yes	no	low
C	no	yes	high
D	no	no	low

20 Which chemical reaction is catalysed by maltase?

A glycogen → glucose + maltose

B maltose → glucose + glucose

C maltose → starch

D starch → glucose + maltose

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21 The table shows the composition of blood entering and leaving the kidneys and liver.

Which row is correct?

	highest concentration of urea in the blood	lowest concentration of urea in the blood
A	entering kidneys	leaving liver
B	entering kidneys	entering liver
C	leaving kidneys	entering liver
D	leaving kidneys	leaving liver

22 A person runs on a hot day.

Which statement describes the flow of blood through the arterioles supplying the surface of the skin?

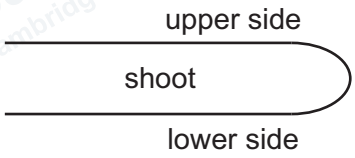
A Vasoconstriction occurs and the amount of blood flowing through the arterioles supplying the surface of the skin decreases.

B Vasoconstriction occurs and the amount of blood flowing through the arterioles supplying the surface of the skin increases.

C Vasodilation occurs and the amount of blood flowing through the arterioles supplying the surface of the skin decreases.

D Vasodilation occurs and the amount of blood flowing through the arterioles supplying the surface of the skin increases.

23 A plant shoot was placed on its side in the dark.



Which row shows the expected changes as the shoot grows in these conditions?

	side showing increased concentration of auxin	side showing increased cell elongation
A	upper	lower
B	upper	upper
C	lower	lower
D	lower	upper

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24 Which row shows the speed of action and duration of effect for the type of control?

	type of control	speed of action	duration of effect
A	hormonal	fast	long
B	hormonal	slow	short
C	nervous	fast	short
D	nervous	slow	long

25 Which statement describes an advantage of using asexual reproduction in crop production?

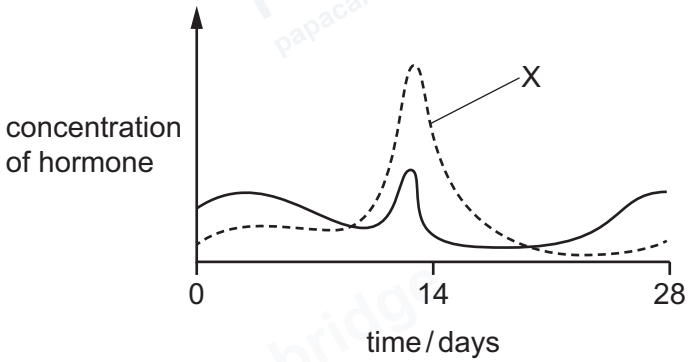
A All offspring inherit the desired characteristic.

B Germination occurs quickly.

C There is increased variation within the crop species.

D The production of adult plants is slower.

26 The diagram shows the relative concentrations of two hormones that are involved in controlling the human menstrual cycle.



Which hormone is represented by X?

A FSH

B LH

C oestrogen

D progesterone

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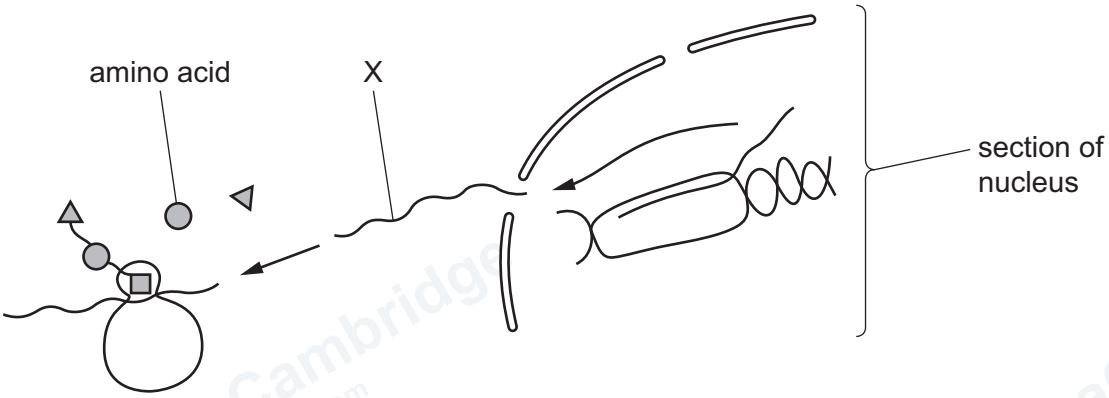
27 How will the composition of a pregnant woman's blood change as it passes through the placenta?

	concentration of dissolved oxygen	concentration of urea
A	decreases	decreases
B	decreases	increases
C	increases	decreases
D	increases	increases

28 The diagram shows some stages of protein synthesis.



What is X?

A a length of DNA

B a length of mRNA

C a sequence of amino acids

D a sequence of genes

29 A cell divides by mitosis once every 3 hours and 24 minutes.

How long will it take to produce 8 new cells from this original cell?

A 583 minutes

B 612 minutes

C 1555 minutes

D 1632 minutes

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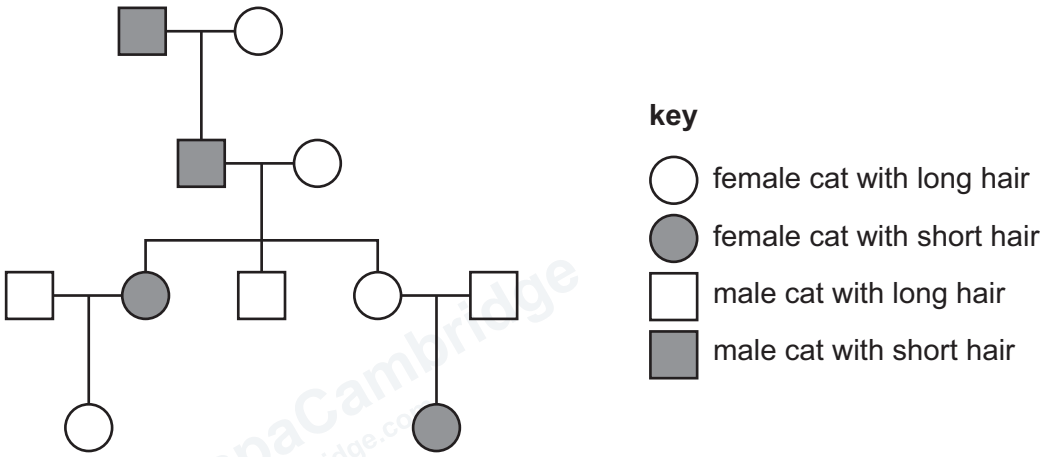
30 The allele for short hair in cats is recessive and the allele for long hair in cats is dominant.

The pedigree diagram shows the inheritance of hair length in a family of cats.



How many cats **must** be heterozygous for hair length?

A 4 **B** 5 **C** 6 **D** 7

31 Which row shows the factors that contribute to variation in a population of animals?

key

✓ = contributes towards variation

✗ = does **not** contribute towards variation

	gamete formation	random change in DNA base sequence	random fertilisation	random mating
A	✓	✓	✓	✓
B	✓	✗	✓	✓
C	✗	✓	✓	✗
D	✗	✓	✗	✓

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32 Different organisms have different adaptive features. For example, the anthers of wind-pollinated flowering plants have long filaments.

What is true of this adaptive feature?

A Filament length is **not** affected by genes.

B It gives the plant an advantage in all environments.

C Longer filaments attract more insects.

D It makes the plant more likely to reproduce.

33 In the nitrogen cycle, bacteria convert ammonia to nitrate ions.

What is the name of this process?

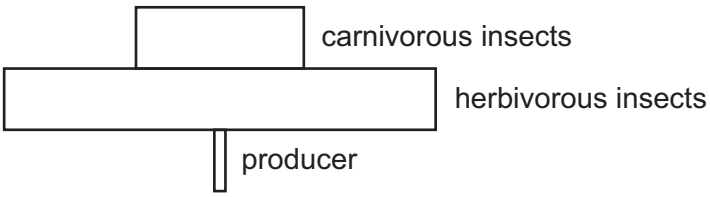
A deamination

B denitrification

C nitrification

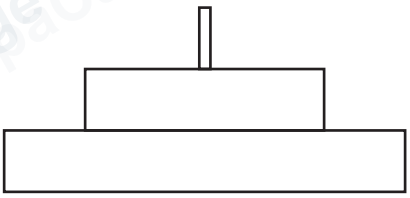
D nitrogen fixation

34 A food chain has the pyramid of numbers shown.

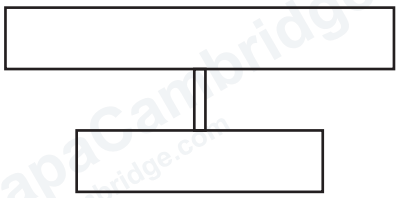


What is the pyramid of biomass for the same food chain?

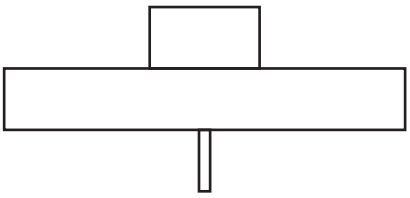
A



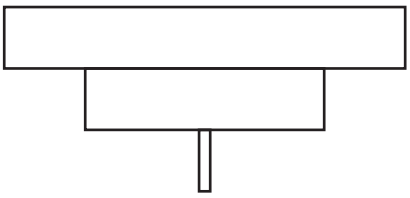
B



C



D



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35 Which factor could result in the death phase of a sigmoid population growth curve?

A absence of limiting factors

B abundance of food

C decrease in competition for space

D increase in predators

36 What is an effect of untreated sewage on aquatic ecosystems?

A decreased decomposition

B decreased nitrate ion concentration

C increased biodiversity

D increased growth of producers

37 The Amur leopard is one of the rarest cats in the world. From 2007 to 2023, the number of Amur leopards increased from 27 to 115.

What is the percentage increase in Amur leopards from 2007 to 2023?

A 33% **B** 77% **C** 326% **D** 426%

38 Deforestation can have a negative impact on the environment.

Which statement about the negative impact of deforestation is correct?

A It decreases the levels of carbon dioxide, which can lead to reduced rates of photosynthesis.

B It decreases the amount of water flowing in local rivers, so there is less flooding.

C It leads to soil loss, so there is less fertile soil for the growth of crops in the area.

D It provides less land for the extraction of natural resources.

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39 The table shows the area of new forest planted in one country from 2017 to 2021.

year	area of new forest planted / km^2
2017	6 500
2018	9 000
2019	13 500
2020	13 700
2021	13 300

What can be concluded from the data?

A From 2017 to 2021 the area of new forest planted increased each year.

B The greatest area of new forest planted was in 2019.

C The mean area of new forest planted each year was 11 200 km^2.

D The percentage increase in area of new forest planted from 2017 to 2021 was 51%.

40 What is the function of an enzyme used in genetic modification?

	type of enzyme	function
A	DNA ligase	isolates the DNA of a human gene
B	DNA ligase	inserts human DNA into bacterial plasmid DNA
C	restriction enzyme	inserts recombinant plasmid DNA into bacteria
D	restriction enzyme	isolates the recombinant plasmid DNA

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