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BIOLOGY **0610/23**

Paper 2 Multiple Choice (Extended) **May/June 2026**

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 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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1 Earthworms come to the soil surface after heavy rain.

View solution

Which characteristic of living organisms does this show?

A growth

B nutrition

C reproduction

D sensitivity

2 Which parts make up the scientific name of an organism?

View solution

A genus and species

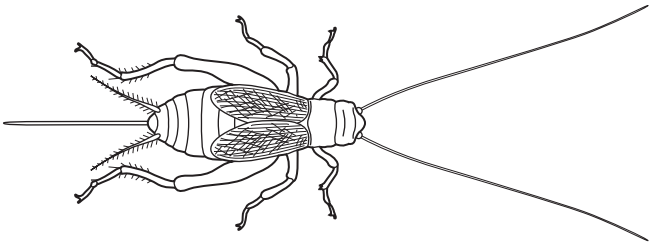
B genus and kingdom

C kingdom and species

D kingdom, genus and species

3 The diagram shows an animal.

View solution



Using the key, what is the identity of the animal in the diagram?

1	has six jointed legs	go to 2
	has eight jointed legs	go to 3
2	has antennae longer than its body	**A** *Gryllus*
	has antennae shorter than its body	**B** *Musca*
3	has stripes on its legs	**C** *Araneus*
	has no stripes on its legs	**D** *Pisaurina*

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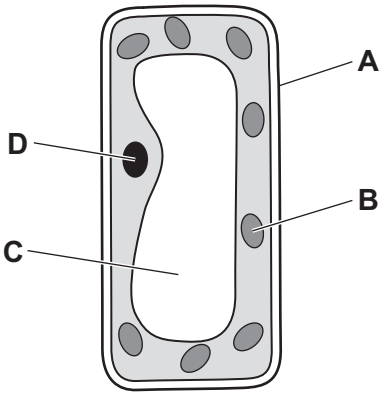
4 The diagram shows a palisade cell from a leaf.

View solution

Which labelled structure releases oxygen?



5 A drawing of a plant cell was measured as 7 cm.

View solution

The magnification of the drawing was ×500.

What was the actual size of the plant cell in micrometres?

A 0.14 µm

B 140 µm

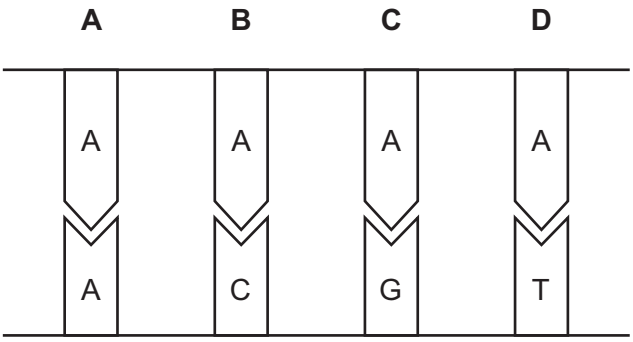
C 3 500 000 µm

D 35 000 000 µm

6 The diagram represents part of a DNA molecule.

View solution

Which base pair is correct?



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7 Which type of biological molecules are enzymes?

View solution

A proteins

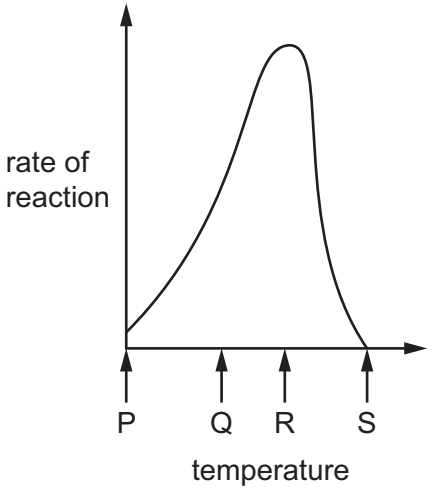
B glycerols

C fatty acids

D sugars

8 The diagram shows the effect of temperature on the rate of an enzyme reaction.

View solution



Which statement is correct?

A The enzyme molecules are denatured at P.

B The greatest amount of kinetic energy is available at R.

C The greatest number of collisions between enzyme and substrate molecules occur at S.

D The optimum rate of reaction occurs at Q.

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9 The table shows the results of an experiment to investigate the effect of light intensity on the rate of photosynthesis.

View solution

light intensity / arbitrary units	volume of oxygen produced per hour / mm^3
1.0	2.5
4.0	7.0
8.0	9.0
11.0	9.0

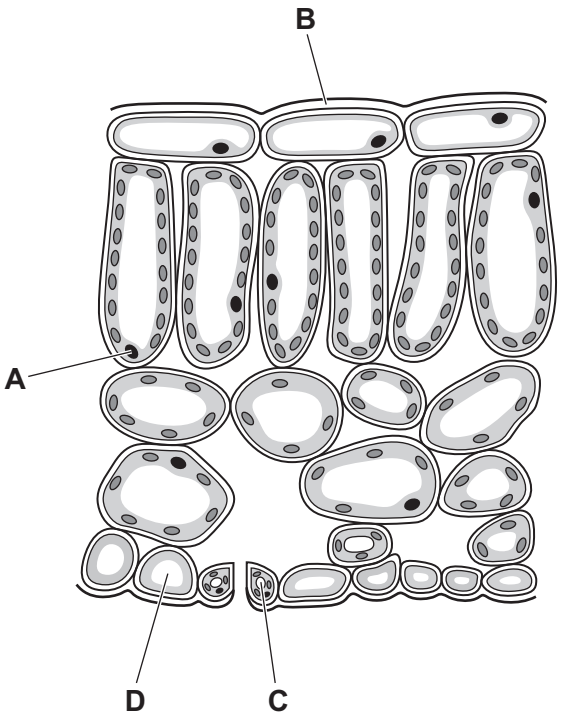
At which light intensity does a factor other than light begin to limit the rate of photosynthesis?

A 1.0 **B** 4.0 **C** 8.0 **D** 11.0

10 The diagram shows a cross-section of a leaf.

View solution

Which structure is a guard cell?



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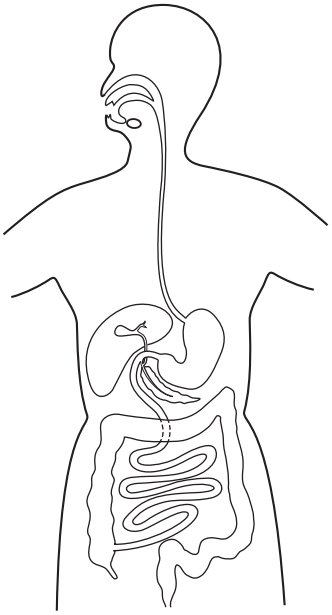
11 The diagram shows a system of the human body.

View solution



Which system is shown?

A circulatory

B digestive

C excretory

D nervous

12 Starch in food is digested in two stages.

View solution

In which parts of the alimentary canal do the two stages occur?

	starch into maltose	**maltose into glucose**
A	duodenum	stomach
B	lining of small intestine	mouth
C	mouth	lining of small intestine
D	stomach	duodenum

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13 What are the features of the cell walls in a xylem vessel?

View solution

	end wall	side wall
A	absent	thick
B	absent	thin
C	present	thick
D	present	thin

14 Which statements about root hairs are correct?

View solution

1 Root hairs allow water to be absorbed by active transport.

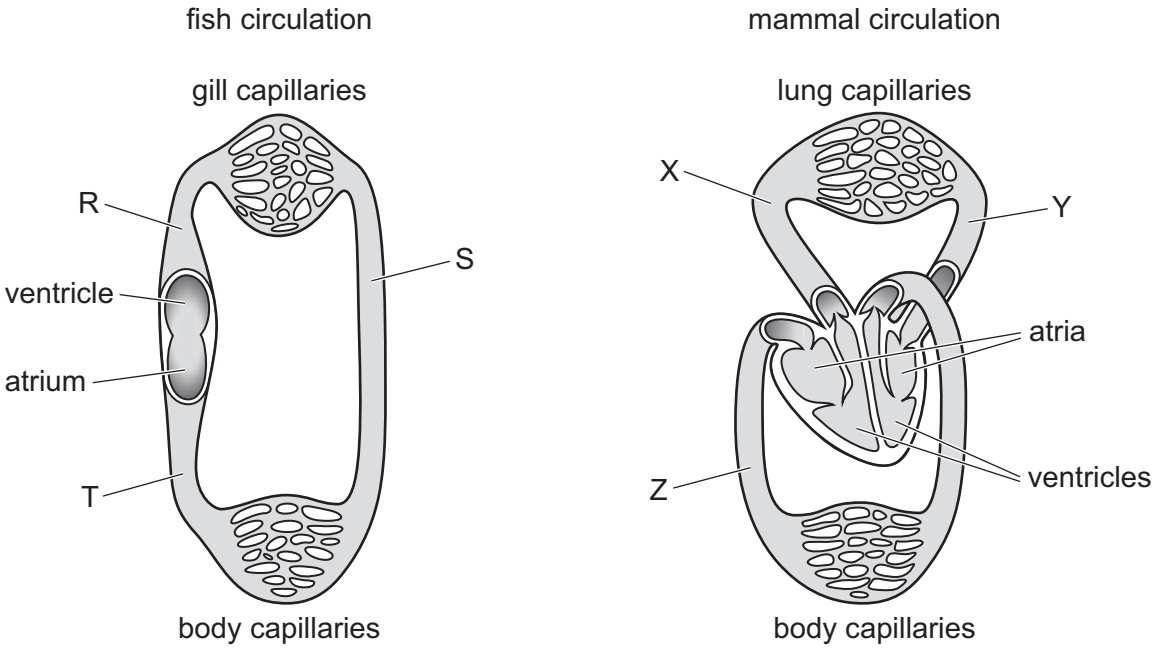
2 Root hairs increase the surface area available for absorption.

3 The rate of absorption of water and ions is increased by root hairs.

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

15 The diagrams show the single circulation of a fish and the double circulation of a mammal.

View solution



Which letters represent areas of oxygenated blood?

A R and X **B** S and Y **C** T and Y **D** T and Z

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16 Which statement explains how cholera bacteria cause diarrhoea?

A Toxins increase the concentration of chloride ions in the small intestine, decreasing the water potential so water moves into the gut by osmosis.

B Toxins increase the concentration of chloride ions in the small intestine, increasing the water potential so water moves into the gut by osmosis

C Toxins decrease the concentration of chloride ions in the small intestine, decreasing the water potential so water moves into the gut by osmosis.

D Toxins decrease the concentration of chloride ions in the small intestine, increasing the water potential so water moves into the gut by osmosis.

View solution 

17 Which row correctly states whether infection and vaccination can cause the development of passive immunity?


View solution

	through infection	through vaccination
A	no	no
B	no	yes
C	yes	no
D	yes	yes

18 What causes a bigger volume of air to be inspired during one breath when exercising?


View solution

A A decreased carbon dioxide concentration in the blood is detected by the brain, which leads to an increased contraction of the internal intercostal muscles.

B A decreased carbon dioxide concentration in the blood is detected by the brain, which leads to an increased contraction of the external intercostal muscles.

C An increased carbon dioxide concentration in the blood is detected by the brain, which leads to an increased contraction of the internal intercostal muscles.

D An increased carbon dioxide concentration in the blood is detected by the brain, which leads to an increased contraction of the external intercostal muscles.

19 Which reaction does this balanced chemical equation show?


View solution

$$C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$$

A aerobic respiration

B anaerobic respiration in muscles

C anaerobic respiration in yeast

D photosynthesis

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20 What is a correct function of the structure?

View solution

	structure	function
A	kidney glomerulus	reabsorption of substances back into the blood
B	kidney nephron	filtration of substances from blood
C	liver	assimilation of amino acids to form proteins
D	liver	deamination of proteins to form amino acids

21 What diffuses across a synapse?

View solution

A electrical signals

B neurotransmitters

C receptor molecules

D vesicles

22 Which statements describe accommodation in eyes?

View solution

1 Ciliary muscles slacken when observing near objects.

2 Lens thickens when observing near objects.

3 Suspensory ligaments contract when observing distant objects.

4 There is a only a slight refraction of light when observing distant objects.

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

23 What is an example of a response that reduces body temperature?

View solution

A increased respiration

B shivering

C sweating

D vasoconstriction

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24 The table shows the blood glucose concentrations in the hepatic portal vein and the hepatic vein of a human.

View solution

blood vessel	blood glucose concentration / mg per dm^3
hepatic portal vein	70
hepatic vein	100

Which statement explains the blood glucose concentrations shown in the table?

A Glucagon has been released by the pancreas to decrease blood glucose concentration.

B Glucagon has been released by the pancreas to increase blood glucose concentration.

C Insulin has been released by the pancreas to decrease blood glucose concentration.

D Insulin has been released by the pancreas to increase blood glucose concentration.

View solution

25 What is meant by the term tropism?

A absorption of light by chlorophyll

B growth of parts of a plant towards or away from a stimulus

C growth of a seed into a small plant

D level at which an organism feeds in a food chain

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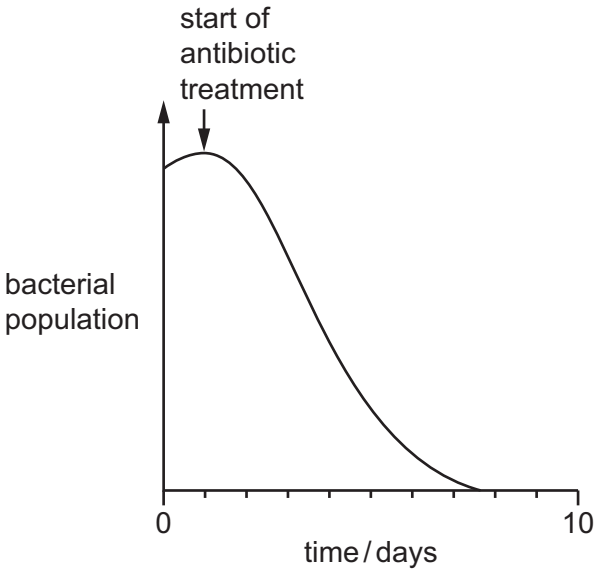
26 The graph shows the effect of an antibiotic treatment on bacterial populations in the blood.

View solution



Which conclusion can be drawn from the graph?

A Antibiotics are effective against viral and bacterial infections.

B Antibiotics cause meiosis in bacteria.

C Antibiotics take ten days to kill all bacteria.

D Before the start of antibiotic treatment the bacterial population was rising.

27 What describes cross-pollination?

View solution

A the transfer of pollen from the anther of a flower to the stigma of a different flower on the same plant

B the transfer of pollen from the anther of a flower to the stigma of a flower on a different plant of the same species

C the transfer of pollen from the anther of a flower to the stigma of the same flower

D the transfer of pollen from the stigma of a flower to the anther of a flower on a different plant of the same species

28 Which hormones are released by the placenta during pregnancy?

View solution

A FSH and LH

B FSH and progesterone

C oestrogen and LH

D progesterone and oestrogen

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29 At the start of mitosis, a cell contained 26 chromosomes. The mass of DNA within the cell was 50 arbitrary units.

View solution

Which row shows the correct number of chromosomes and mass of DNA in a daughter cell produced at the end of mitosis?

	number of chromosomes	mass of DNA / arbitrary units
A	13	25
B	13	50
C	26	25
D	26	50

30 What is the transmission of genetic information from generation to generation known as?

View solution

A cell division

B inheritance

C meiosis

D mitosis

31 Two sets of parents have an equal chance of producing a baby with either blood group AB or blood group B.

View solution

What are the genotypes of the two sets of parents?

1 I^AI^A and I^BI^O

2 I^AI^B and I^BI^B

3 I^AI^B and I^BI^O

4 I^AI^O and I^BI^B

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

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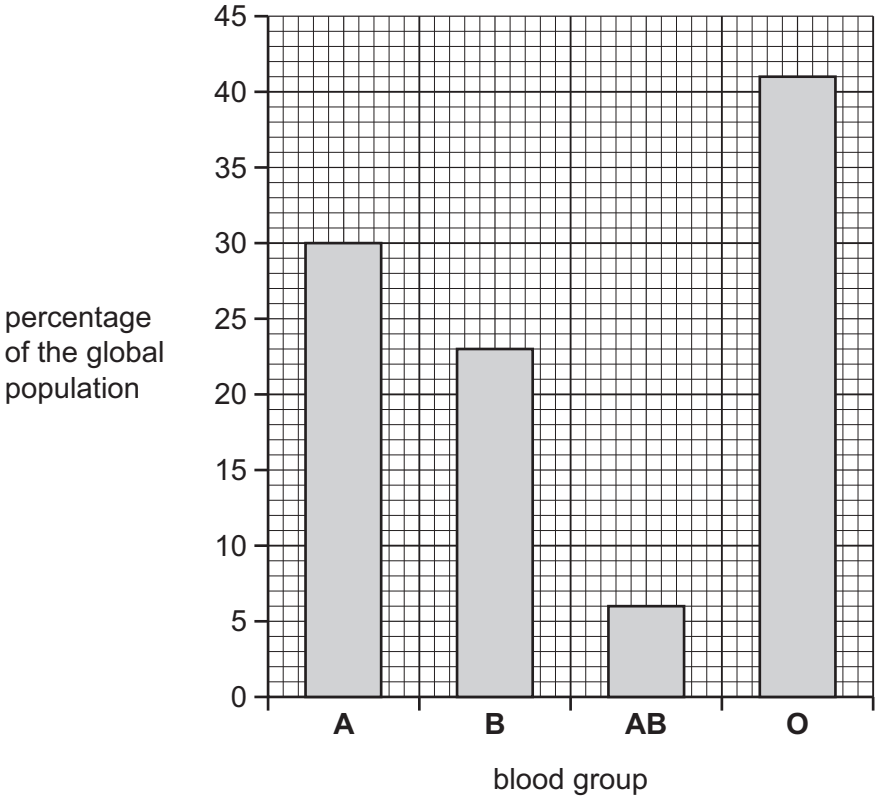
32 The graph shows the percentages of the global population with the four different blood groups in the ABO system.

View solution



What can be concluded from the graph?

A ABO blood groups show the same variation as body mass.

B ABO blood groups are an example of discontinuous variation.

C The variation in ABO blood groups results in a range of phenotypes between two extremes.

D Variation in ABO blood groups is caused by genes and the environment.

33 Which features of natural selection are also involved in selective breeding by artificial selection?

View solution

1 competition between individuals for environmental resources

2 presence of genetic variation

3 reproduction between individuals of the same species

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

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34 What is a correct statement about a pyramid of energy for an ecosystem?

View solution

A It shows the amount of energy entering the first trophic level.

B It shows the energy in each trophic level.

C The energy available at each trophic level increases further up a pyramid of energy.

D The height of the bars show how much energy is available at each trophic level.

35 What is a decomposer?

View solution

A an animal that gets its energy by eating other animals

B an animal that gets its energy by eating plants

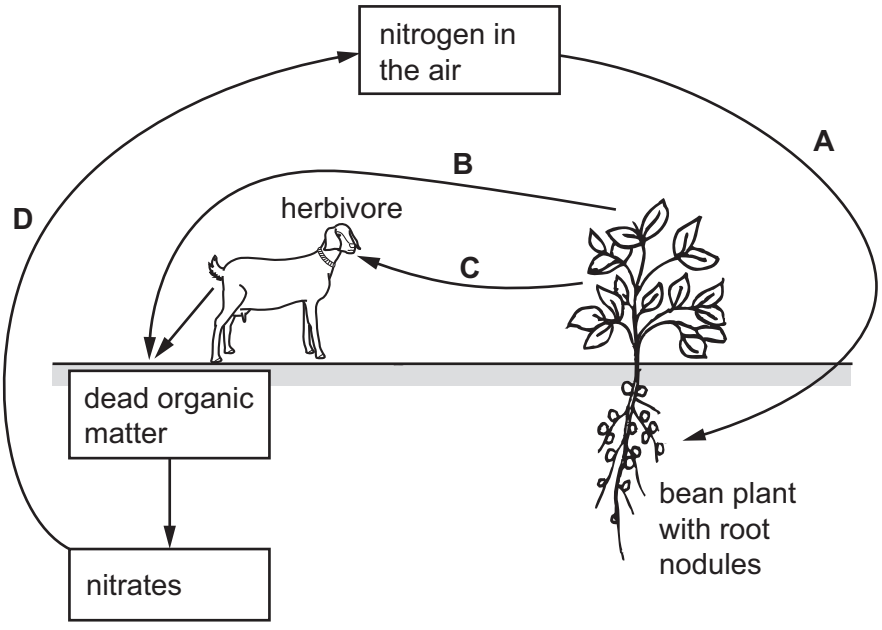
C an organism that gets its energy from dead or waste organic material

D an organism that makes its own organic nutrients using photosynthesis

36 The diagram shows some of the stages in the nitrogen cycle.

View solution

Which arrow represents the process of nitrogen fixation?



NOT TO SCALE

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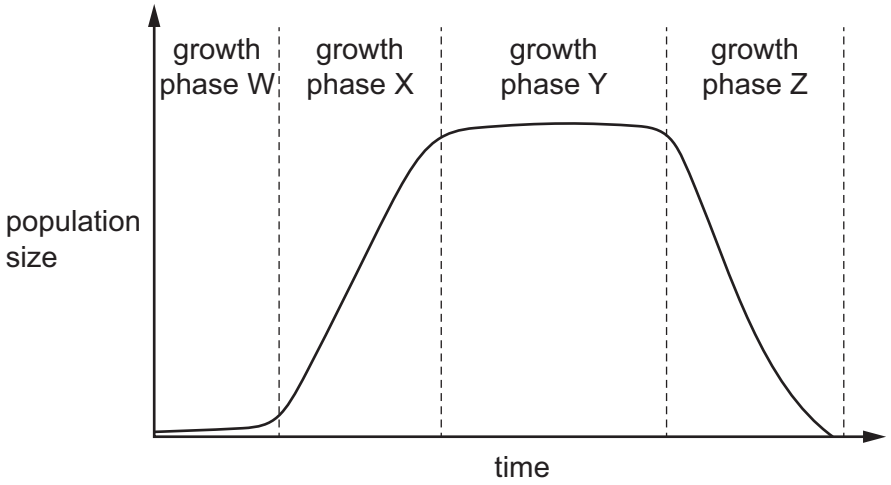
37 The graph shows the population size of bacteria grown in a closed container.

View solution



Which row explains what is happening at growth phases X and Y?

	growth phase X	**growth phase Y**
A	population growth is **not** limited by amount of nutrients	population growth is limited by amount of nutrients
B	population growth is **not** limited by amount of nutrients	population growth is **not** limited by amount of nutrients
C	population growth is limited by amount of nutrients	population growth is limited by amount of nutrients
D	population growth is limited by amount of nutrients	population growth is **not** limited by amount of nutrients

38 When a river is polluted by fertiliser, the following processes may occur.

View solution

1 increased aerobic respiration of decomposers

2 increased growth of producers

3 decreased oxygen concentration in the water

What is the correct sequence for these processes?

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

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39 What is an example of a sustainable use of resources?

View solution

A conserving endangered species of animals using captive breeding programmes

B monitoring and protecting species and habitats

C planting new trees to replace those that are cut down to make paper

D treating sewage before releasing it into the environment

40 Which feature of bacteria makes it possible for them to be used to produce human insulin?

View solution

A Bacteria possess plasmids.

B Bacteria possess exactly the same DNA base sequences as humans.

C Bacteria possess the same genes for insulin.

D Bacteria possess the same number of chromosomes as humans.

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