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BIOLOGY **0610/21**

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 **20** pages. Any blank pages are indicated.

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1 Which characteristic of living things is described as the breakdown of nutrient molecules to release energy?

View solution

A excretion

B nutrition

C respiration

D sensitivity

2 The characteristics of an organism are listed.

View solution

- It consists of one cell.
- There is a nucleus in the cell.
- It can photosynthesise.
- It does **not** possess a transport system.

To which kingdom does this organism belong?

A fungus

B plant

C prokaryote

D protoctist

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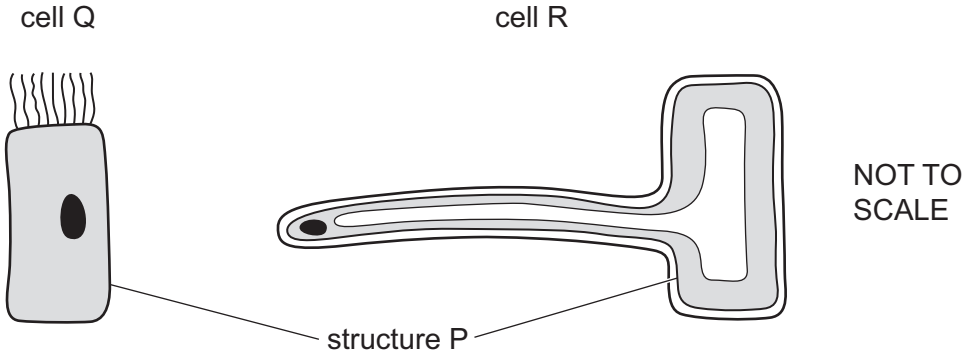
3 The diagram shows two cells.

View solution



Which row identifies structure P and the cell that is adapted for mineral ion uptake?

	structure P	**cell that is adapted for mineral ion uptake**
A	cell wall	cell Q
B	cell wall	cell R
C	cell membrane	cell Q
D	cell membrane	cell R

4 A specimen is viewed under a microscope.

View solution

The magnification is ×200.

The image size of the specimen is 50 mm.

What is the actual size of the specimen?

A 0.25 µm **B** 4 µm **C** 250 µm **D** 4000 µm

5 Which statements describe features of osmosis?

View solution

1 a partially permeable membrane
2 the movement of any liquid
3 using energy from respiration
4 water molecules moving by diffusion

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

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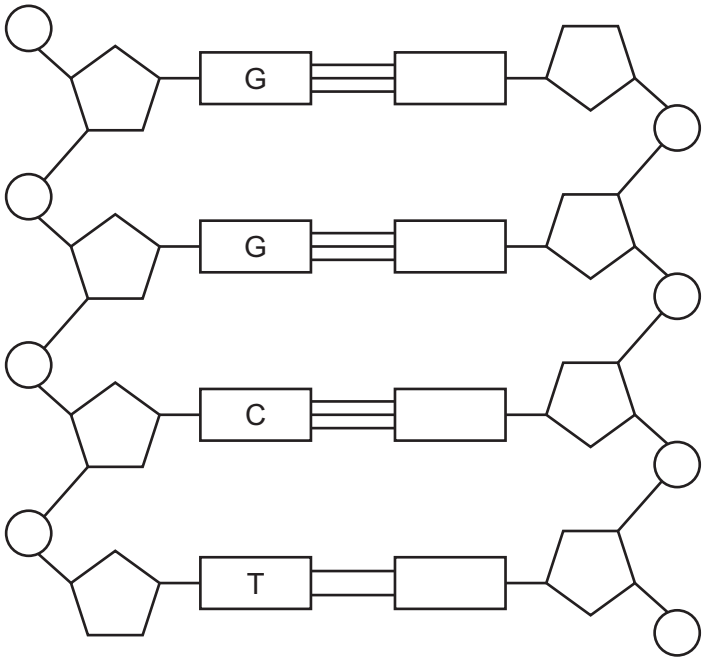
6 The diagram shows part of a DNA molecule.

View solution

The bases of one strand are labelled.



From top to bottom, what is the base sequence of the **other** strand?

A A, A, T, C

B C, C, G, A

C G, G, C, T

D T, T, A, G

7 Increasing temperature above the optimum for an enzyme results in loss of enzyme activity.

View solution

How is this explained?

A There are less frequent collisions between the enzyme and the substrate.

B The kinetic energy of the enzyme molecule is reduced.

C Substrate molecules move faster and effective collisions are less likely.

D The shape of the active site is changed and the substrate will no longer fit into it.

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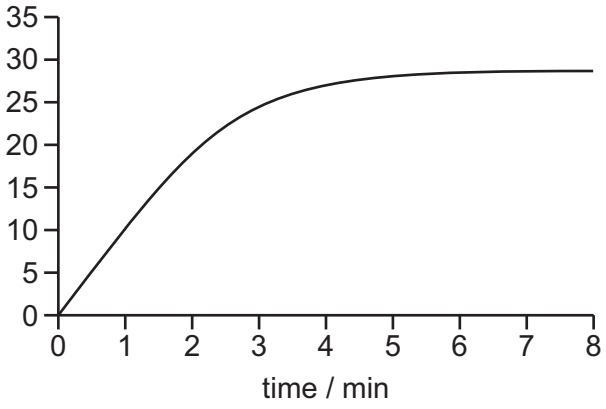
8 The enzyme-catalysed reaction of substrate S occurs as shown.

View solution

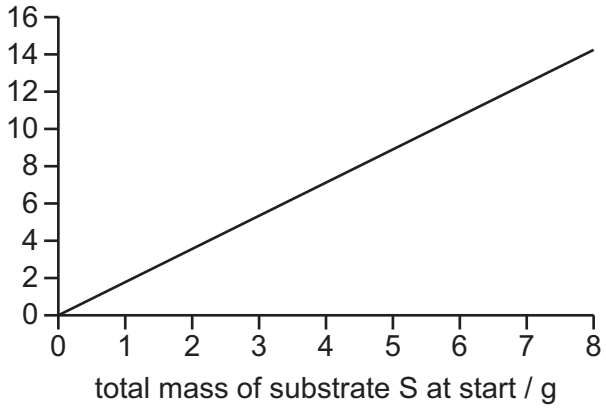
$$S \rightarrow T + U$$

Which graph shows this enzyme-catalysed reaction?

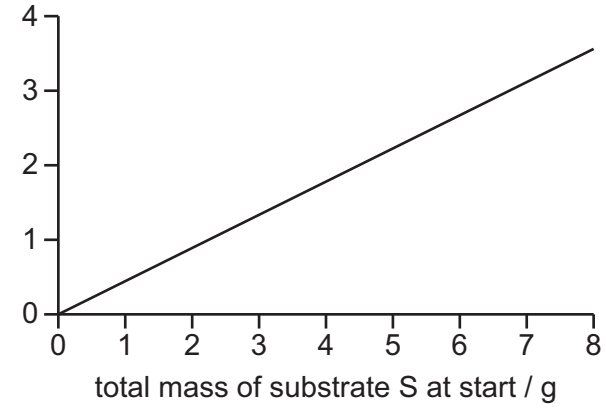
A



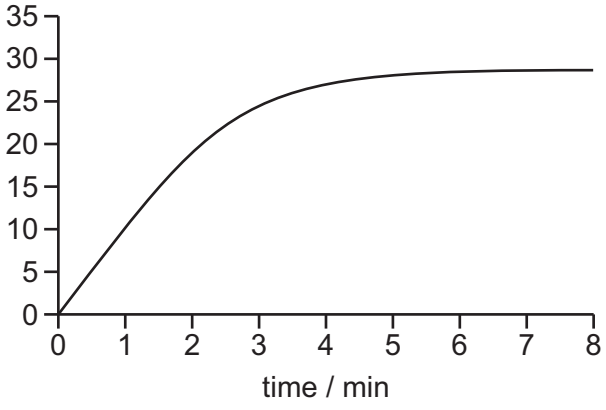
B



C



D



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9 What is the function of starch in a plant?

View solution

A energy storage

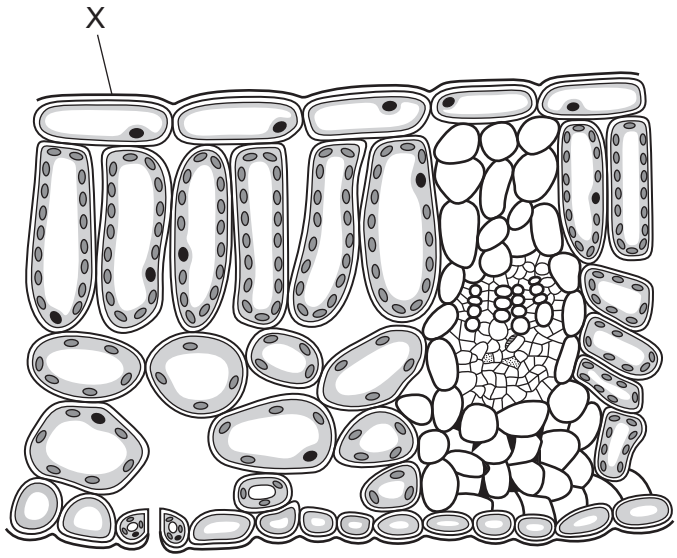
B building cell walls

C transport in the phloem

D respiration

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

View solution



What is the structure labelled X?

A cuticle

B palisade mesophyll

C spongy mesophyll

D stomata

11 Which statement describes the effect of bile on fat?

View solution

A breaks down fat into smaller molecules

B catalyses the breakdown of fat

C converts fat into soluble molecules

D emulsifies fat into smaller droplets

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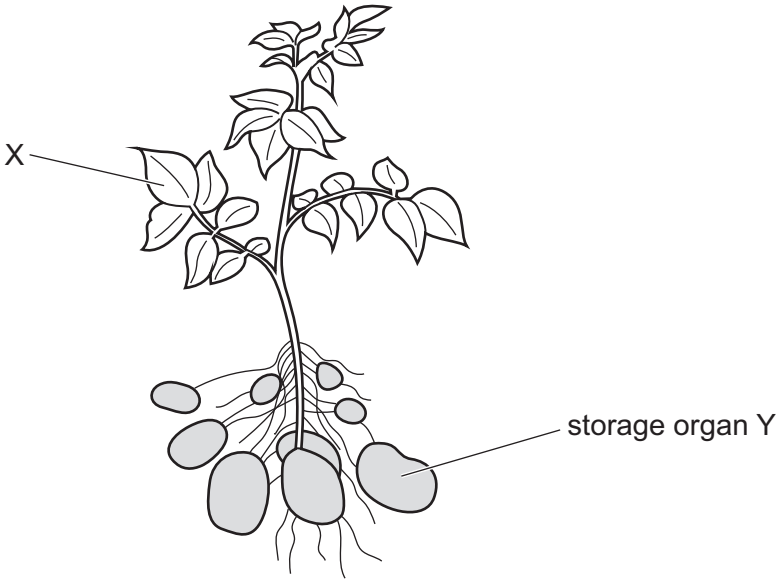
12 Which row identifies the features of the named enzyme?

View solution

	name of enzyme	name of substance broken down	products formed
A	amylase	carbohydrate	glucose
B	amylase	protein	simple reducing sugars
C	lipase	fat	fatty acids and glycerol
D	lipase	protein	amino acids and glycerol

13 The diagram shows a potato plant.

View solution



Which statement describes the movement of substances produced in photosynthesis?

A Glucose is converted to starch and then transported from X to Y. X is the source and Y is the sink.

B Glucose is converted to starch and then transported from X to Y. X is the sink and Y is the source.

C Glucose is converted to sucrose and then transported from X to Y. X is the source and Y is the sink.

D Glucose is converted to sucrose and then transported from X to Y. X is the sink and Y is the source.

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14 In a patient with coronary heart disease, which blood vessel would become blocked?

View solution

A aorta

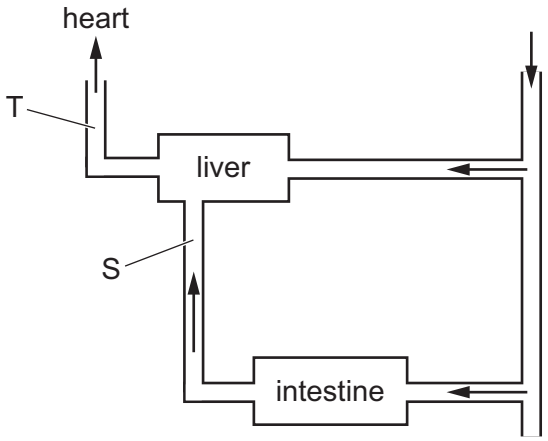
B coronary artery

C coronary vein

D pulmonary artery

15 The diagram shows part of the circulatory system.

View solution



Which row identifies S and T?

	S	T
A	hepatic artery	hepatic portal vein
B	hepatic artery	hepatic vein
C	hepatic portal vein	hepatic artery
D	hepatic portal vein	hepatic vein

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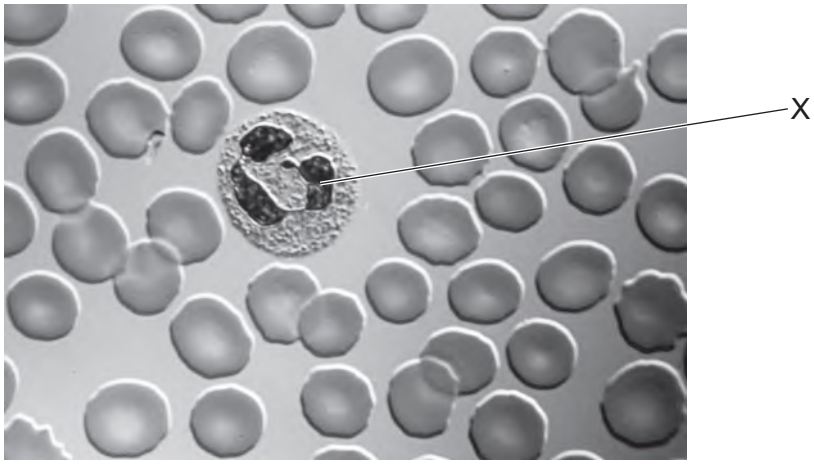
16 The photomicrograph shows some blood cells.

View solution



What is the function of cell X?

A antibody production

B conversion of fibrin to fibrinogen

C oxygen transport

D phagocytosis

17 The disease influenza is caused by a virus.

View solution

After a person is infected, ...1..... from the virus stimulate an immune response by the .....2..... which produce .....3..... .

Which row completes the description of how a person recovers from influenza?

	1	2	3
A	antibodies	antigens	lymphocytes
B	antibodies	lymphocytes	antigens
C	antigens	antibodies	lymphocytes
D	antigens	lymphocytes	antibodies

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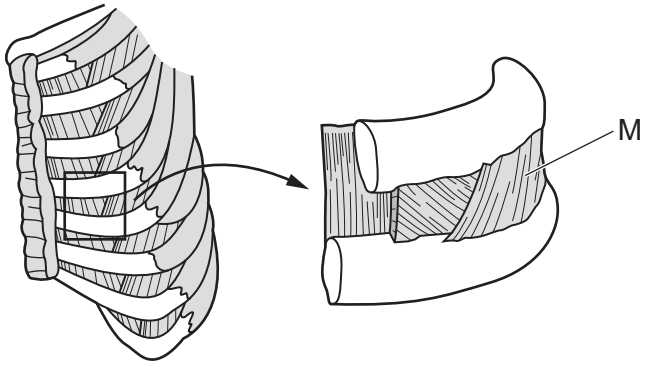
18 The diagram shows part of the breathing system in humans.

View solution



What is the function of the type of muscle labelled M in the diagram?

A It contracts to move the ribcage up and out, which decreases pressure in the thorax.

B It contracts to move the ribcage down and in, which decreases pressure in the thorax.

C It contracts to move the ribcage up and out, which increases pressure in the thorax.

D It contracts to move the ribcage down and in, which increases pressure in the thorax.

19 The heart rate in humans remains high for a period of time after exercise.

View solution

Which statement explains why?

A Carbon dioxide needs to be transported from the lungs to the liver.

B Glucose needs to be transported from the muscles to the liver.

C Lactic acid needs to be transported from the muscles to the liver.

D Oxygen needs to be transported from the liver to the lungs.

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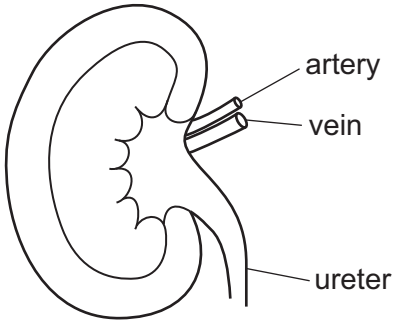
20 The diagram shows a kidney and associated blood vessels.

View solution



In a healthy person, which structures transport glucose?

A artery only

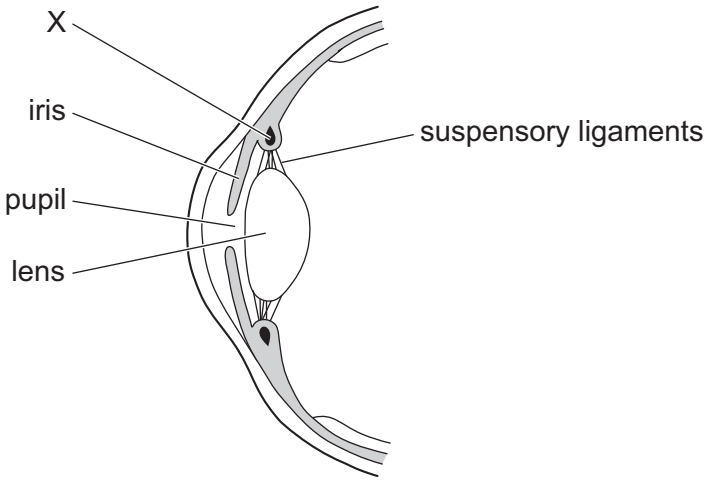
B artery and ureter

C artery and vein

D ureter and vein

21 The diagram shows a section through part of the eye.

View solution



X is a contracted ciliary muscle.

What will happen when the ciliary muscle relaxes?

A The lens will become thinner.

B The lens will become thicker.

C The size of the pupil will decrease.

D The size of the pupil will increase.

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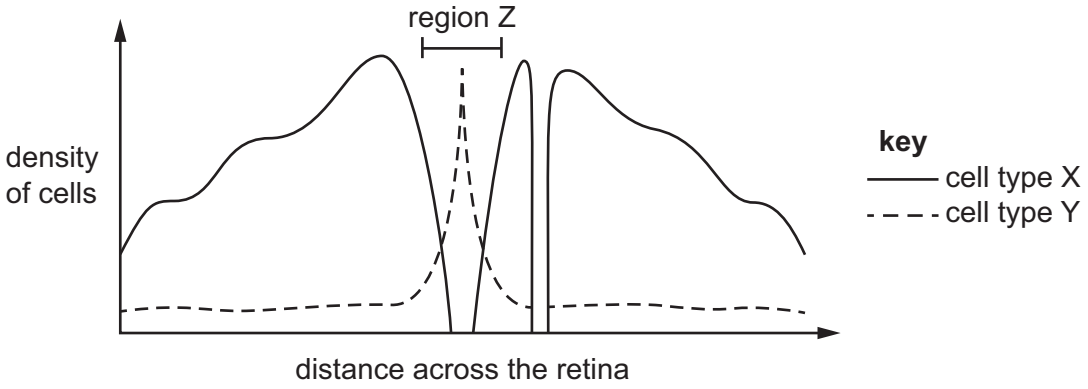
22 The diagram shows the distribution of two types of light sensitive cells in the retina.

View solution



What are the names of cell type X, cell type Y and region Z?

	cell type X	cell type Y	region Z
A	cones	rods	blind spot
B	cones	rods	fovea
C	rods	cones	blind spot
D	rods	cones	fovea

23 Which experiments could be used to demonstrate gravitropism in a shoot?

View solution

1 a horizontal shoot that is grown in the dark

2 a horizontal shoot that is grown in the light

3 a shoot that is grown upright in the dark

4 a shoot that is grown upright in the light

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

24 How can bacterial resistance to antibiotics be reduced?

View solution

A using antibiotics frequently, which encourages the natural selection of antibiotic-resistant bacteria

B using antibiotics frequently, which decreases the natural selection of antibiotic-resistant bacteria

C using antibiotics only when necessary, which encourages the natural selection of antibiotic-resistant bacteria

D using antibiotics only when necessary, which decreases the natural selection of antibiotic-resistant bacteria

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25 Which statement about sexual reproduction in the wild is correct?

View solution

A A disease is likely to affect the whole population.

B There is genetic variation in the offspring.

C Only one parent is required.

D The species is less able to adapt to changes in the environment.

26 Which flower structures produce gametes?

View solution

key

✓ = yes

✗ = no

	anther	filament	stigma
A	✓	✓	✗
B	✓	✗	✗
C	✗	✓	✓
D	✗	✗	✓

27 Which row shows the roles of oestrogen and testosterone in the development of secondary sexual characteristics in humans?

View solution

	production of gametes	widening of hips	widening of shoulders
A	testosterone	testosterone	oestrogen and testosterone
B	testosterone	oestrogen	oestrogen and testosterone
C	oestrogen and testosterone	oestrogen	testosterone
D	oestrogen and testosterone	oestrogen and testosterone	testosterone

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28 A scientist investigates the action of a drug that affects the production of proteins by cells.

View solution

The scientist grows two groups of cells.

The scientist adds the drug to one group of the cells.

After one day, the scientist determines the mass of proteins in each group of cells.

The table shows the results.

group of cells	mass of proteins produced per million cells / μg
with no drug	25
with drug	5

Which statements could explain the results in the table?

1 The drug stops messenger RNA passing through ribosomes.

2 The drug stops production of messenger RNA.

3 The drug stops the copying of DNA before mitosis.

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

View solution

29 What is true of **both** chromosomes and genes?

A They code for a specific protein.

B They may be copied and passed on in mitosis.

C They may be either dominant or recessive.

D They may exist as two or more alleles.

View solution

30 Which stages in sexual reproduction occur in both flowering plants and humans?

1 Gametes are made by meiosis.

2 Gametes fuse to form a zygote.

3 The male gamete moves to the female gamete.

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

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31 Two heterozygous snapdragon plants were crossed. Their seeds were collected and grown into snapdragon plants with flowers.

View solution

The number of snapdragon plants and their flower colour are shown in the table.

number of snapdragon plants	flower colour
99	flower colour 1
198	flower colour 2
102	flower colour 3

What can be concluded from these results?

A Flower colour in snapdragon plants is sex-linked.

B The alleles for flower colour are codominant.

C The snapdragon parent plants are pure-breeding.

D There must be more than two alleles present for flower colour.

32 Which feature is found in a hydrophytic plant?

View solution

A Leaves are curled with stomata on the inside.

B Leaves are reduced to spines.

C Stomata are sunk in pits in the epidermis.

D There is no waxy cuticle on the leaves.

33 Some of the stages involved in natural selection are listed.

View solution

1 The better adapted organisms survive to reproduce.

2 The surviving organisms pass on their alleles to their offspring.

3 There is a struggle for organisms to survive.

4 There is genetic variation within organisms in a population.

What is the order of the stages in natural selection?

A $2 \rightarrow 1 \rightarrow 3 \rightarrow 4$

B $1 \rightarrow 2 \rightarrow 4 \rightarrow 3$

C $4 \rightarrow 3 \rightarrow 1 \rightarrow 2$

D $4 \rightarrow 3 \rightarrow 2 \rightarrow 1$

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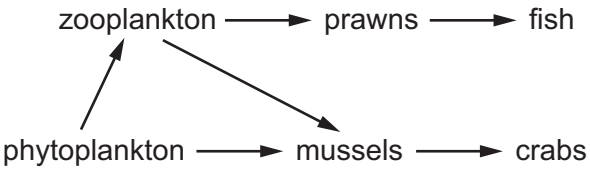
34 The diagram shows a marine food web.

View solution



Humans harvest prawns for food.

What effects would the overharvesting of prawns have on the populations in this food web?

	fish	mussels	phytoplankton
A	decrease	increase	decrease
B	decrease	increase	increase
C	increase	decrease	decrease
D	increase	decrease	increase

View solution

35 In the carbon cycle, what is the simple substance absorbed by producers?

A carbohydrate

B carbon dioxide

C nitrate

D protein

View solution

36 Which row describes the stages of population growth?

	exponential (log) phase	stationary phase
A	equal birth rate and death rate	death rate higher than birth rate
B	equal birth rate and death rate	birth rate higher than death rate
C	birth rate higher than death rate	equal birth rate and death rate
D	birth rate higher than death rate	death rate higher than birth rate

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37 Which statement describes the term population?

View solution

A a group of organisms of one species, living in different areas at the same time

B a group of organisms of one species, living in the same area at the same time

C the number of different species that live in the same area at the same time

D the number of individuals of all the species that live in the same area at the same time

38 What is an undesirable effect of deforestation?

View solution

A habitat creation

B loss of soil

C more species

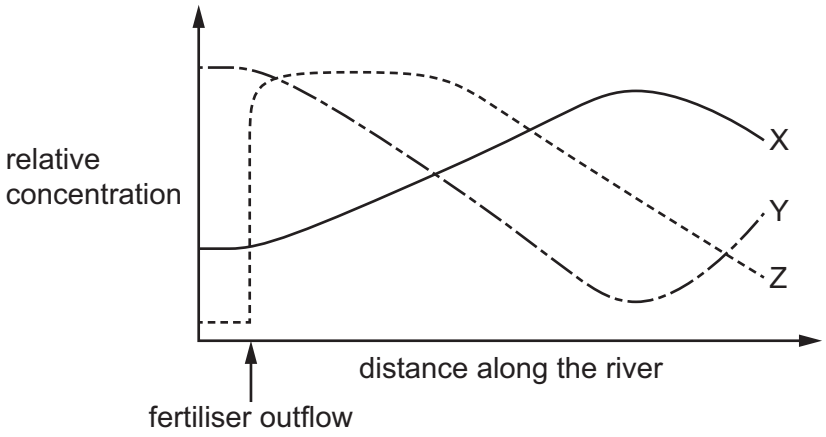
D reduced carbon dioxide in the atmosphere

39 The graph shows the relative concentrations of three substances in the water of a river.

View solution

The three substances are oxygen, algae and mineral ions.

The graph also shows where fertiliser is released into the river.



Which substances do lines X, Y and Z represent?

	X	Y	Z
A	algae	oxygen	mineral ions
B	mineral ions	algae	oxygen
C	oxygen	algae	mineral ions
D	oxygen	mineral ions	algae

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40 Which enzyme is used to insert human DNA into bacterial plasmid DNA?

View solution

A DNA ligase

B pectinase

C restriction enzyme

D trypsin

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