Cambridge IGCSE

Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice **October/November 2014**

45 minutes

Additional Materials: Multiple Choice Answer Sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

* 9 6 2 5 3 6 4 9 4 5 *

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, glue or correction fluid.
Write your name, Centre number and candidate number on the Answer Sheet in the spaces provided unless this has been done for you.
DO NOT WRITE IN ANY BARCODES.

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 separate Answer Sheet.

Read the instructions on the Answer Sheet very carefully.

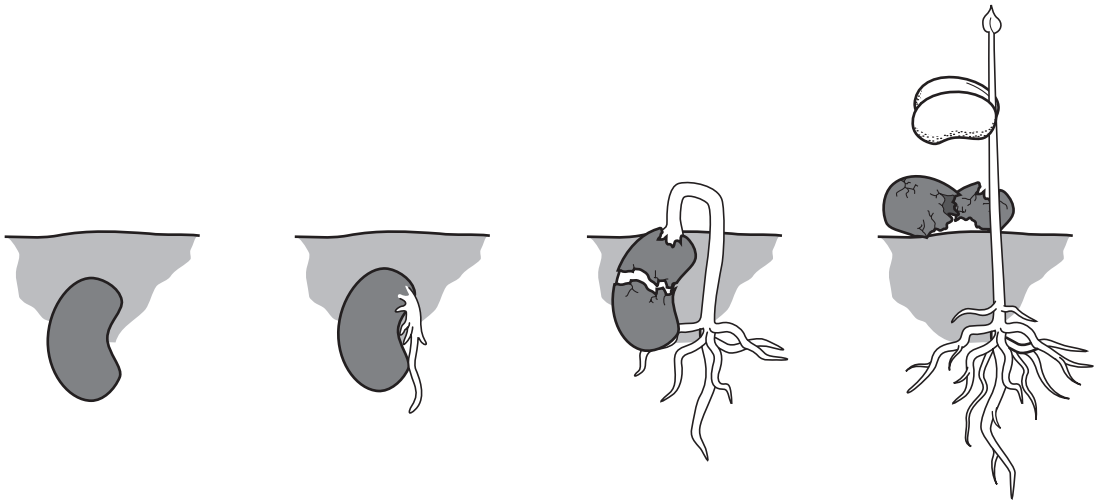
Each correct answer will score one mark. A mark will not be deducted for a wrong answer.
Any rough working should be done in this booklet.
Electronic calculators may be used.

The syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

This document consists of **15** printed pages and **1** blank page.

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1 The diagram shows how a seed changes after it is planted in well-watered soil.



Which characteristics of living things are demonstrated by this sequence?

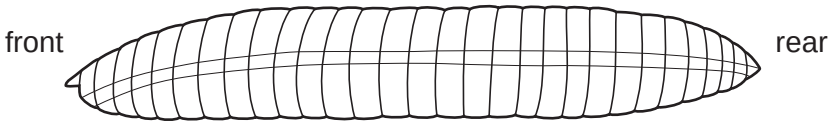
A growth and reproduction

B growth and sensitivity

C nutrition and reproduction

D nutrition and sensitivity

2 The diagram shows the body plan of an invertebrate animal.



To which group does the animal belong?

A annelid

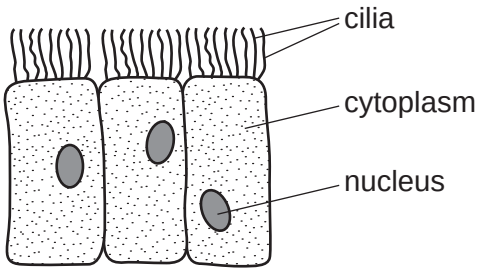
B crustacean

C insect

D nematode

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3 The diagram shows some cells.



Where are these cells found?

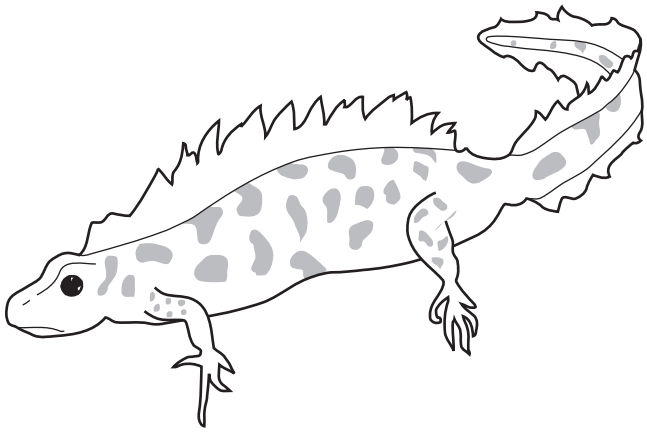
A alimentary canal

B blood

C bronchial wall

D plant roots

4 The diagram shows an animal.



Use the key to identify the animal.

1 front limbs with five fingers ..... go to 2

front limbs with four fingers ..... go to 3

2 skin with spots ..... **A**

skin without spots ..... **B**

3 tail with fins ..... **C**

tail without fins ..... **D**

5 For which process is a root hair cell adapted?

A absorption of mineral ions

B support of stem

C translocation of sucrose

D transport of oxygen

6 Which features are possessed by **all** plant cells?

	a cell wall	chloroplasts
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

7 Which substance is transported by haemoglobin?

A nitrogen

B oxygen

C urea

D water

8 Which processes produce a continuous space for the flow of water in xylem vessels?

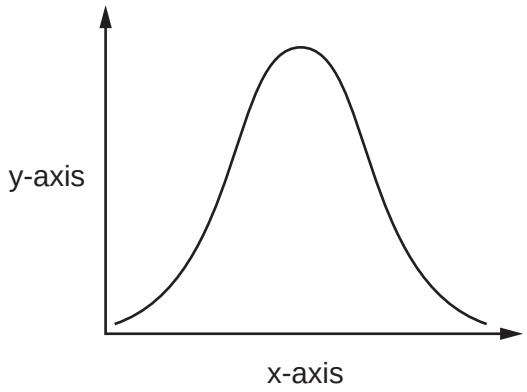
	break down of the cell walls between adjacent cells	removal of the cytoplasm in each cell
A	yes	yes
B	yes	no
C	no	yes
D	no	no

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9 Which characteristics are correct for **both** osmosis and diffusion?

	require a partially permeable membrane	require a concentration gradient	are energy consuming processes
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✗
D	✗	✗	✓

10 An experiment was carried out to investigate the effect of pH on enzyme action. The graph shows the results.



What are the labels for the x-axis and the y-axis?

	x-axis	y-axis
A	pH	rate of reaction
B	pH	time
C	rate of reaction	pH
D	time	pH

11 What happens to most enzymes above 60 °C?

A They are denatured.

B They are destroyed by white blood cells.

C They are digested.

D They are made more active.

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12 What is a function of phloem?

A translocation

B transpiration

C storage of food

D support

13 Some liquid is collected from the xylem in the stem of a plant.

What is present in the liquid?

A cellulose

B inorganic ions

C starch

D sugar

14 Which simple molecules are the basic units of protein?

A amino acids

B fatty acids

C sugars

D vitamins

15 What is the function of the anus?

A assimilation

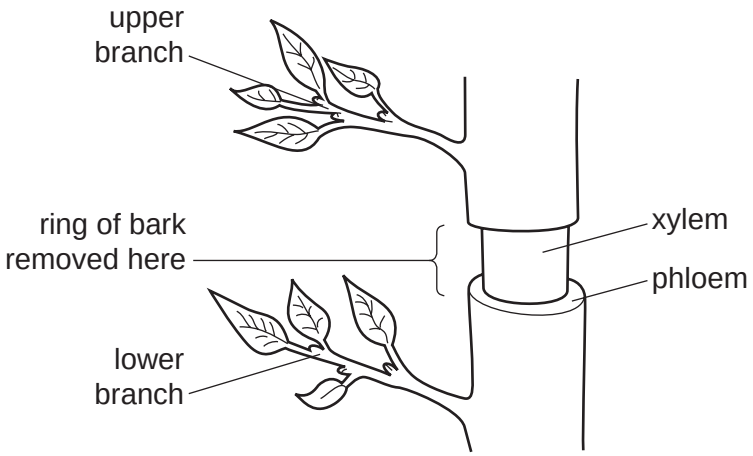
B digestion

C egestion

D excretion

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16 The diagram shows part of the trunk of a small tree with a ring of bark removed. Removing the ring of bark takes away phloem but leaves the xylem intact.



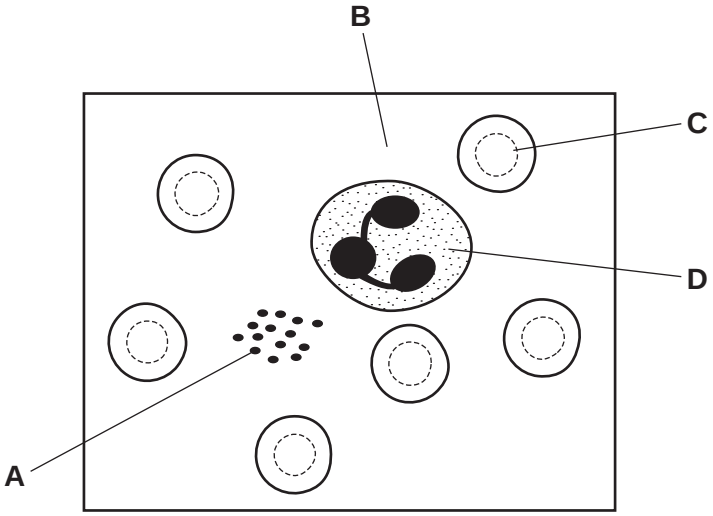
What effect will removing the bark have on the two branches?

	lower branch		upper branch	
	growth	leaves	growth	leaves
A	normal	normal	normal	wilted
B	normal	wilted	normal	normal
C	reduced	normal	normal	normal
D	reduced	wilted	reduced	wilted

17 The diagram shows human blood as seen through a light microscope.

A person's blood is unable to clot.

Which component of the blood is **not** functioning properly?



18 Why is yeast used in bread-making?

A to provide carbon dioxide

B to provide ethanol

C to provide lactic acid

D to provide oxygen

19 What are the products of anaerobic respiration in muscles?

A ethanol and carbon dioxide

B ethanol only

C lactic acid and carbon dioxide

D lactic acid only

20 The oxygen carrying capacity of the blood of smokers is less than that of non-smokers.

Which component of cigarette smoke causes this?

A carbon monoxide

B nicotine

C smoke particles

D tar

21 Which actions straighten the arm at the elbow joint?

	biceps	triceps
A	contracts	contracts
B	contracts	relaxes
C	relaxes	contracts
D	relaxes	relaxes

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22 The table shows a student's water losses on a cool day.

	water loss / cm^3
in urine	1500
in faeces	100
in expired air	400
in sweat	800
total	2800

On a hot day the student's water intake was the same as on the cool day.

On the hot day, which water losses would increase and which would decrease?

	increase	decrease
A	in sweat	in expired air
B	in sweat	in urine
C	in urine	in faeces
D	in urine	in sweat

23 After a meal containing carbohydrates, which row shows the changes in concentration of glucose and urea in the blood as it passes through the liver?

	glucose	urea
A	less	less
B	less	more
C	more	less
D	more	more

24 To avoid extinction of a rare plant species, a botanical garden keeps a collection of seeds, known as a seed bank.

Which condition will prevent these seeds germinating whilst in storage?

A high humidity

B high oxygen levels

C low light intensity

D low temperature

25 A plant has two different alleles of a gene resulting in it having a green seed.

Which row describes the phenotype and genotype of the seeds of this plant?

	phenotype	genotype
A	Gg	heterozygous
B	Gg	homozygous
C	green	heterozygous
D	green	homozygous

26 Which response is a result of geotropism?

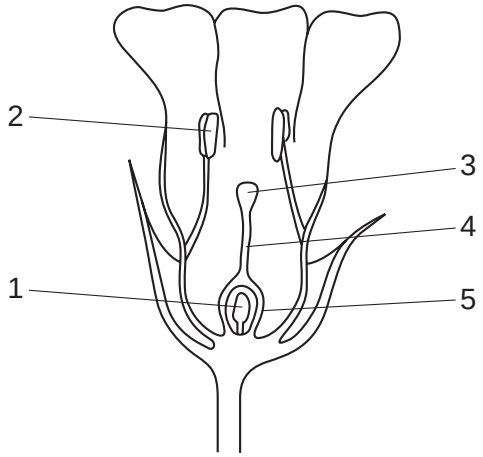
A flowers being produced

B growing bigger leaves

C roots growing downwards

D seeds germinating

27 The diagram shows a flower in vertical section.



Which numbered parts of the flower continue to develop after fertilisation?

A 1 and 5 **B** 2 and 4 **C** 3 and 5 **D** 4 and 5

28 Which sex chromosomes are present in all mature human sperm cells?

A both X and Y chromosomes

B either X or Y chromosomes

C only X chromosomes

D only Y chromosomes

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29 What may be defined as 'an increase in dry mass'?

A growth

B nutrition

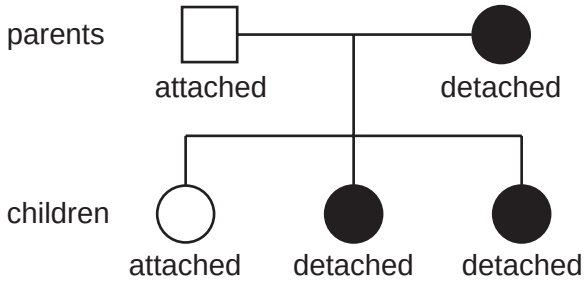
C reproduction

D respiration

30 The shape of a person's earlobes is determined by a single gene. This gene has dominant and recessive alleles.

The allele for detached earlobes is dominant to the allele for attached earlobes.

The diagram shows the inheritance of earlobe shape in a family.

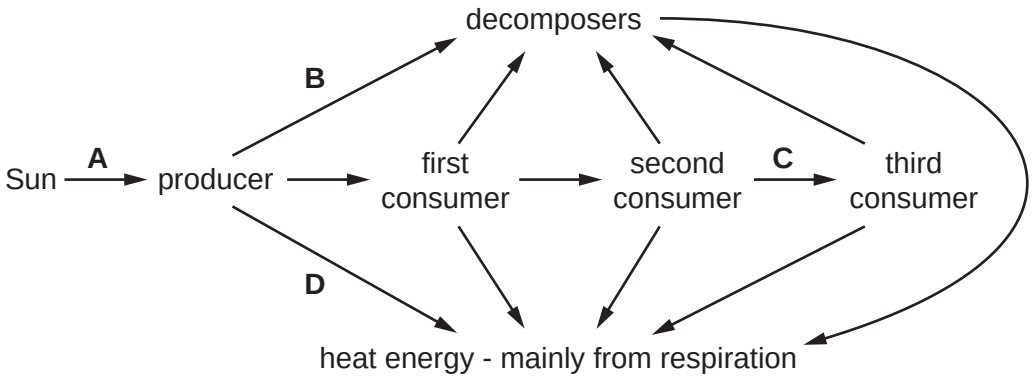


What is the probability of the next child from the same parents having detached earlobes?

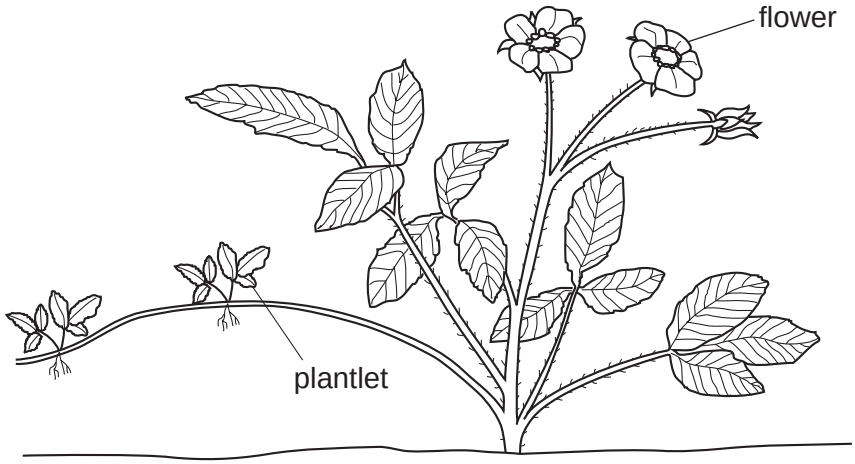
A 0% **B** 25% **C** 50% **D** 75%

31 The diagram shows energy passing through an ecosystem.

Which arrow shows energy leaving the food web?



32 The diagram shows a plant that is producing small plantlets.



Which statement about the plantlets is correct?

A They are genetically different from the parent plant.

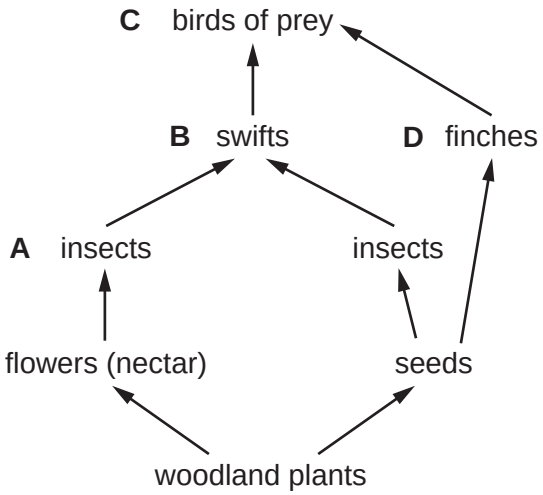
B They are genetically identical to the parent plant.

C They are produced as a result of the fusion of nuclei.

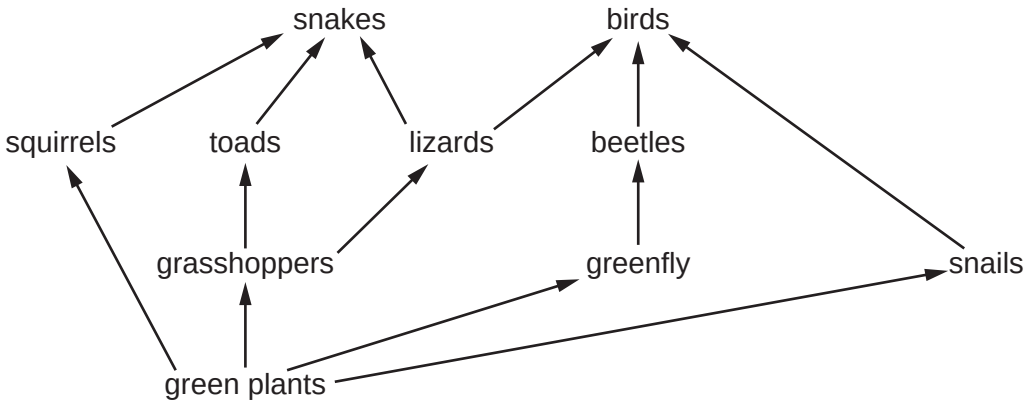
D They are produced by fertilising the flowers.

33 The diagram shows some feeding relationships in a woodland area.

Which of the labelled animals are in competition with seed-eating insects for their food?



34 The diagram shows a food web.



Which organisms will increase in number, if the number of snakes increases?

A birds

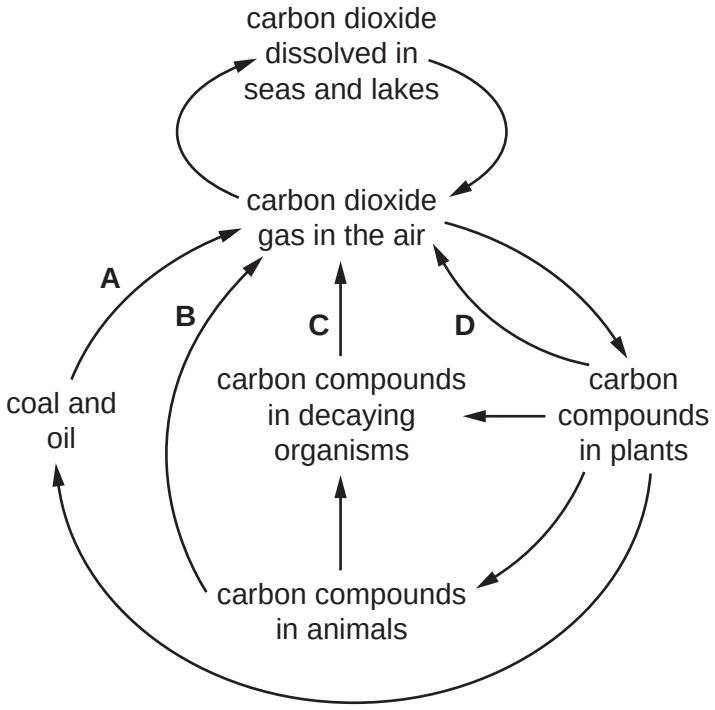
B grasshoppers

C lizards

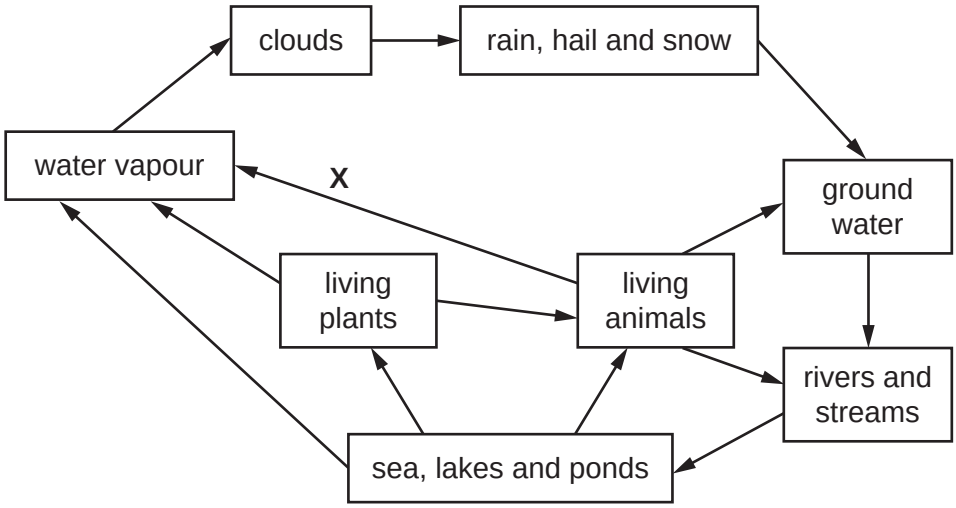
D squirrels

35 The diagram shows the carbon cycle.

Which process produces carbon dioxide from substances made by photosynthesis millions of years ago?



36 The diagram shows the water cycle.



Which process is represented by **X**?

A osmosis

B photosynthesis

C respiration

D transpiration

37 Over-use of fertilisers on farmland causes the chemicals in the fertilisers to be washed into ponds and lakes.

This causes eutrophication resulting in the following events.

1 algae grow

2 fish die

3 bacteria grow

4 oxygen decreases

What is the correct sequence of these events?

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

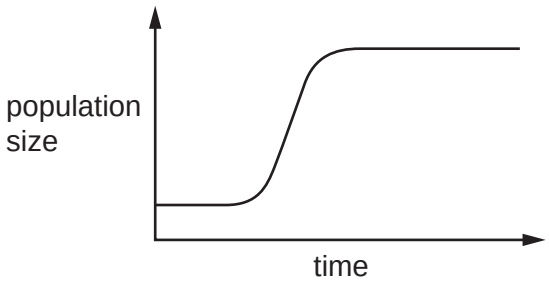
B $1 \rightarrow 4 \rightarrow 3 \rightarrow 2$

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

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

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38 The graph shows part of a growth curve for a bacterial population.



What is missing from the graph?

A the death phase

B the exponential phase

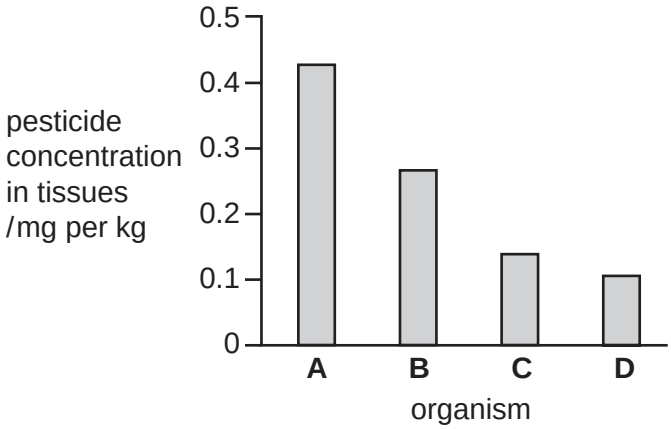
C the lag phase

D the stationary phase

39 The concentration of a pesticide in the tissues of the organisms in the following food chain was measured.

plants → small fish → large fish → birds of prey

Which bar on the chart represents the large fish?



40 Which activity will be **least** likely to lead to the extinction of species?

A conservation

B deforestation

C use of herbicides

D use of pesticides

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