UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

BIOLOGY **0610/13**

Paper 1 Multiple Choice **October/November 2013**

45 minutes

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

* 3 9 3 2 1 1 7 0 8 7 *

READ THESE INSTRUCTIONS FIRST

Write in soft pencil.
Do not use staples, paper clips, highlighters, 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.

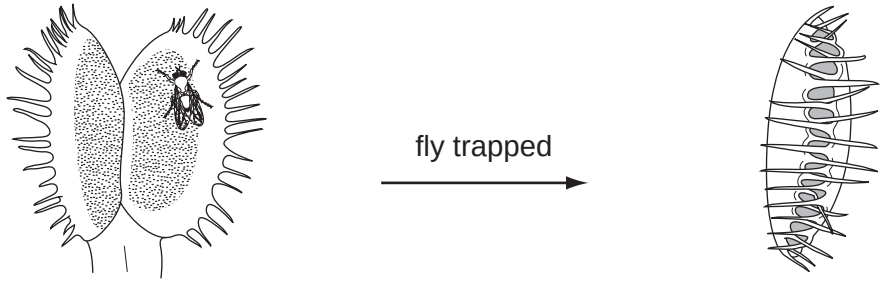
Read the instructions on the Answer Sheet very carefully.

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.

This document consists of **18** printed pages and **2** blank pages.

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1 The diagram shows how a plant, called a Venus fly-trap, reacts to a fly landing on it.



a fly lands on a leaf

the fly is digested by juices produced by the leaf

Which characteristics of living things are shown by the plant in the diagram?

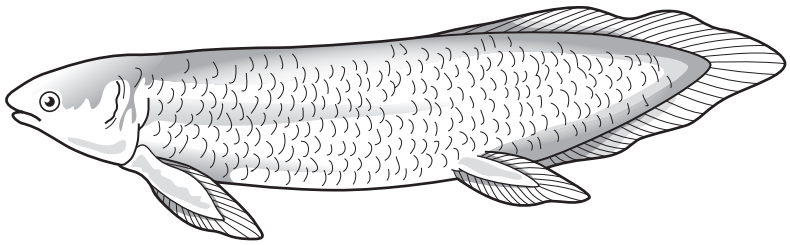
A excretion and growth

B growth and sensitivity

C nutrition and reproduction

D nutrition and sensitivity

2 The diagram shows the external features of an animal.



To which class does it belong?

A amphibians

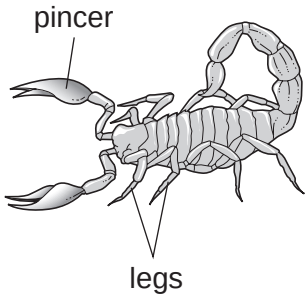
B fish

C mammals

D reptiles

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3 The diagram shows an arthropod.



To which group does it belong?

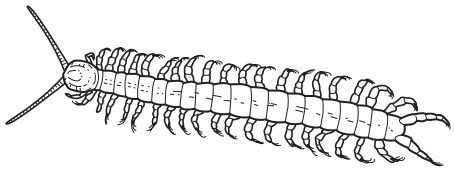
A annelids

B arachnids

C insects

D myriapods

4 The diagram shows a small animal.



Use the key to identify the animal.

1 has wings ..... go to 2

has no wings ..... go to 3

2 has one pair of legs per segment ..... **A**

has two pairs of legs per segment ..... **B**

3 has one pair of antennae ..... **C**

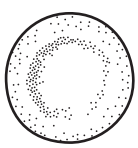
has two pairs of antennae ..... **D**

5 Which diagram shows a liver cell?

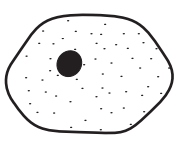
A



B



C



D



6 What is a feature of both plant and animal cells?

A a cell membrane

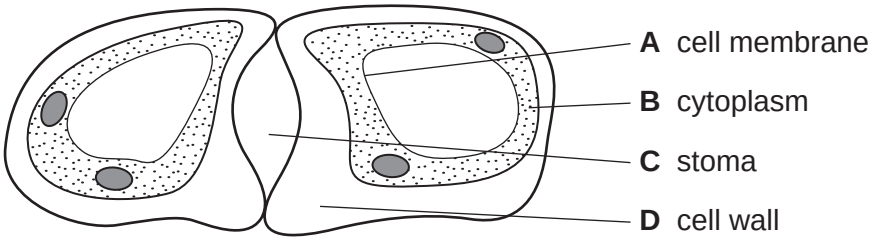
B a cell wall

C a large vacuole

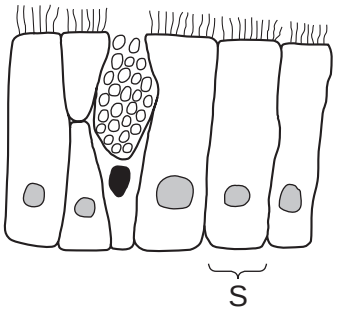
D chloroplasts

7 The diagram shows a student's drawing of guard cells.

Which label line is **incorrect**?



8 The diagram shows structures that form the surface of the trachea.



Which level of organisation is the structure labelled S?

A cell

B organ

C organ system

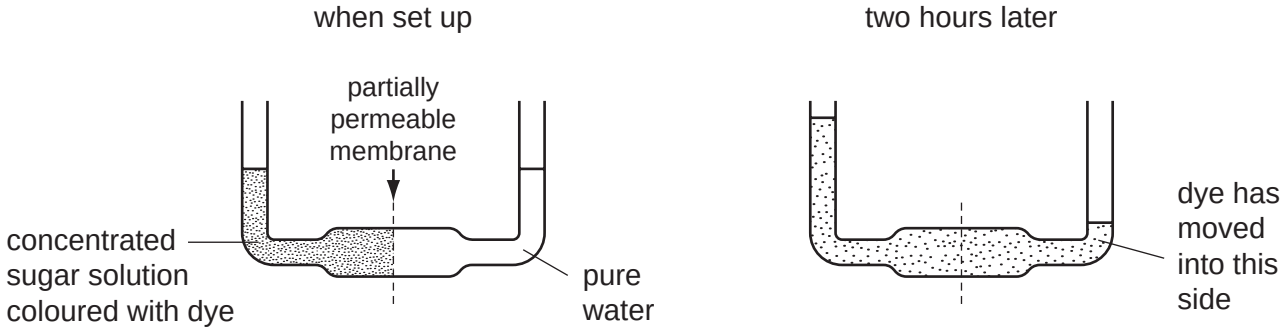
D tissue

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9 What is a correct description of red blood cells?

	thin region in the cell centre	large nucleus
A	✓	✓
B	✓	✗
C	✗	✓
D	✗	✗

10 The diagrams show an experiment when set up and the same experiment two hours later.

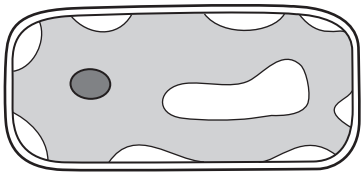


What explains the movement of water and dye?

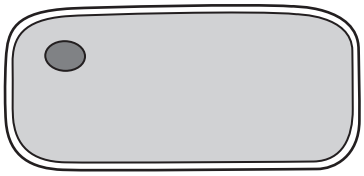
	movement of water	movement of dye
A	diffusion	osmosis
B	osmosis	diffusion
C	osmosis	translocation
D	translocation	diffusion

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

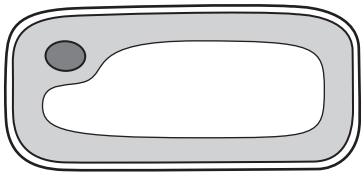
A



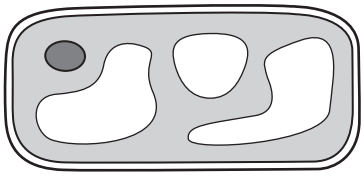
B



C



D



12 Two enzyme-controlled reactions are shown.

$$\text{amino acids} \xrightarrow{\text{enzyme 1}} \text{proteins}$$

$$\text{proteins} \xrightarrow{\text{enzyme 2}} \text{amino acids}$$

From these reactions, what deduction can be made about enzymes?

A Enzyme 1 has been changed to enzyme 2.

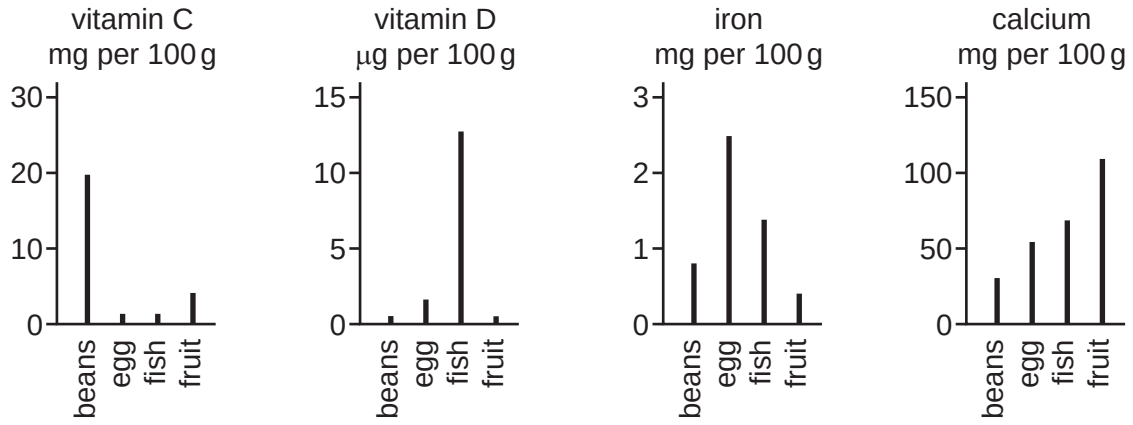
B Enzyme 2 slows down the production of amino acids.

C Enzymes can build up large molecules.

D Enzymes only break down large molecules.

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13 The graphs show the quantities of selected vitamins and mineral ions in four foods.



Which food is the richest source of the vitamin or mineral ions essential for the transport of oxygen by the blood?

A beans

B egg

C fish

D fruit

14 Four foods were tested for each of the following nutrients:

fat (using ethanol);

protein (using the biuret test);

reducing sugar (using Benedict's solution),

Which food contains protein and fat?

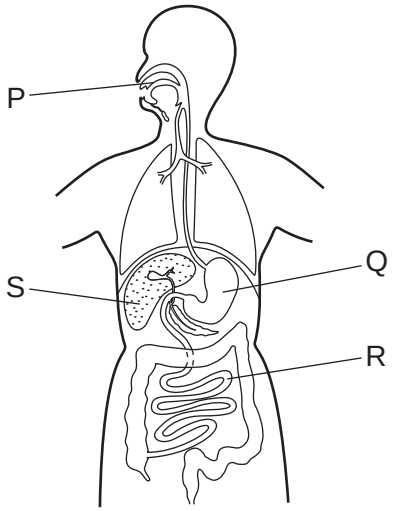
	colour of result of food test		
	purple / lilac	brick-red / orange	milky-white
A	✓	✗	✓
B	✓	✗	✗
C	✗	✓	✓
D	✗	✓	✗

key

✓ = nutrient present

✗ = nutrient absent

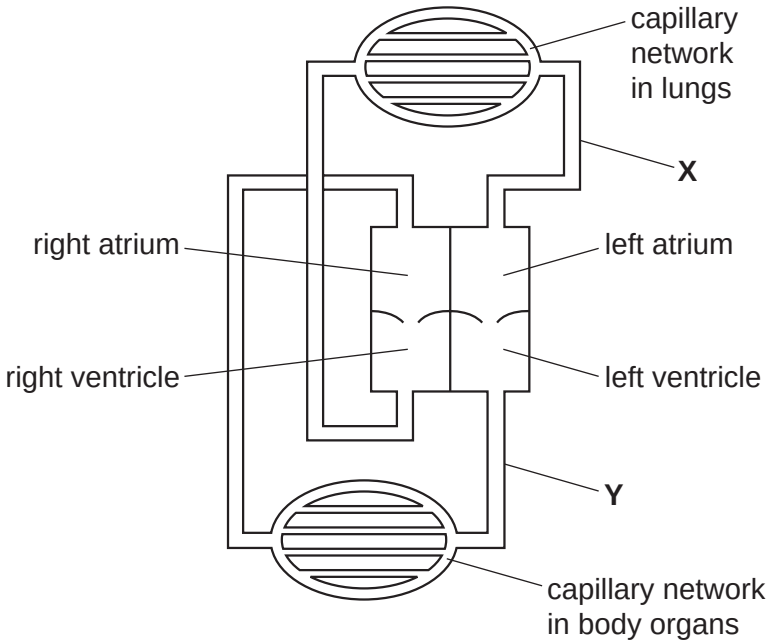
15 The diagram shows some of the organs of the human body.



In which organs does the digestion of carbohydrates take place?

A P and Q **B** P and R **C** Q and R **D** Q and S

16 The diagram shows the circulatory system of a mammal.



What describes the blood in vessels **X** and **Y**?

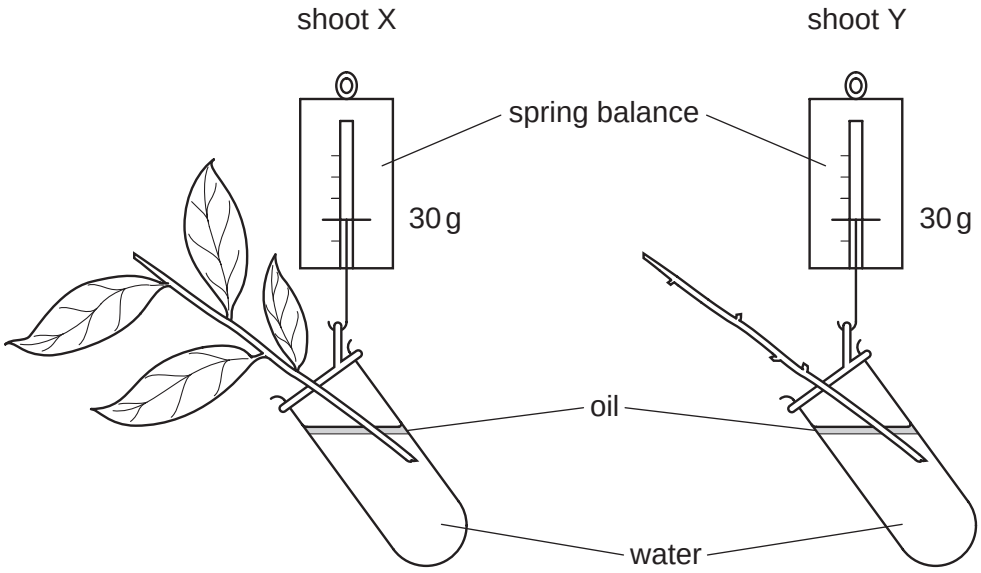
	X	Y
A	deoxygenated	deoxygenated
B	deoxygenated	oxygenated
C	oxygenated	deoxygenated
D	oxygenated	oxygenated

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17 Which statements about plant transpiration are correct?

	plants transpire most when	plants transpire least when
A	air is dry	temperature is high
B	light intensity is high	air is humid
C	light intensity is low	temperature is low
D	temperature is cold	light intensity is high

18 The diagram shows two shoots at the start of an experiment on transpiration.



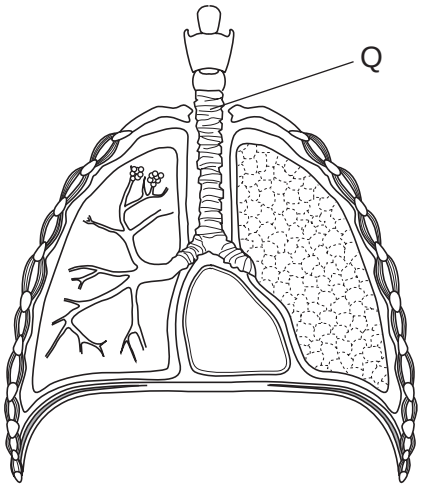
What are the likely readings on the spring balances after three days?

	shoot X	shoot Y
A	30 g	30 g
B	30 g	25 g
C	25 g	30 g
D	25 g	25 g

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[Turn over

19 The diagram shows some structures in the human neck and thorax.



The lining of tube Q has cilia.

What is an important function of the cilia?

A to help in the exchange of gases

B to increase the internal surface area of tube Q

C to moisten the air entering and leaving the lungs

D to move mucus towards the throat

20 Which process uses the greatest amount of energy?

A gaseous diffusion

B protein synthesis

C respiration

D starch digestion

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21 The table shows the approximate composition of air breathed out by a mammal.

gas	air breathed out / %
nitrogen	80
oxygen	16
carbon dioxide	4

Where did the nitrogen in the air breathed out come from?

A It was a product of proteins broken down in the mammal.

B It was a product of respiration.

C It was in the air that was breathed in.

D It was exchanged for oxygen which was taken into the blood.

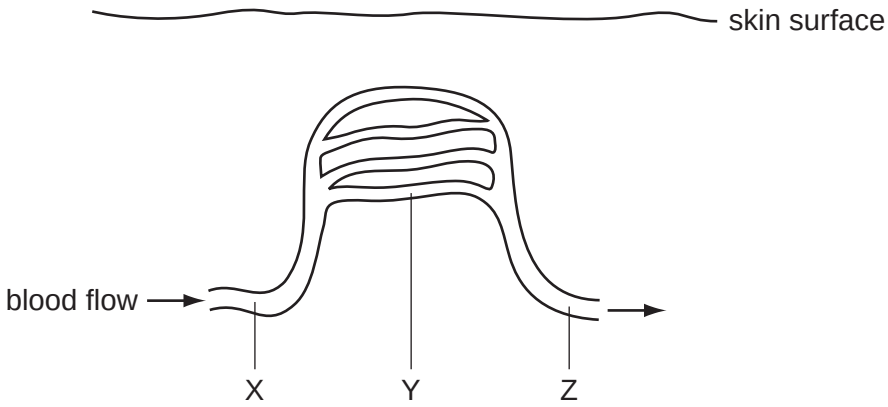
22 A person has a high-protein diet.

What describes the level of urea in the blood leaving the liver and in the urine leaving the kidneys?

	urea in blood leaving liver	urea in urine leaving kidneys
A	high	high
B	high	low
C	low	high
D	low	low

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23 The diagram shows some blood vessels near the surface of the skin.



If vasoconstriction occurs at X, what happens to the blood flow at Y and Z?

	Y	Z
A	decreases	decreases
B	decreases	stays constant
C	increases	increases
D	increases	stays constant

24 At night, a man looks at the stars and then begins to read a map using a bright lamp.

How do the shape of his lenses and the size of his pupils change?

	lenses	pupils
A	fatter	larger
B	fatter	smaller
C	thinner	larger
D	thinner	smaller

25 What is the main function of sweating?

A to excrete urea

B to remove excess salts

C to clean the pores

D to cool the body

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26 Which method of birth control works by preventing an egg from being released?

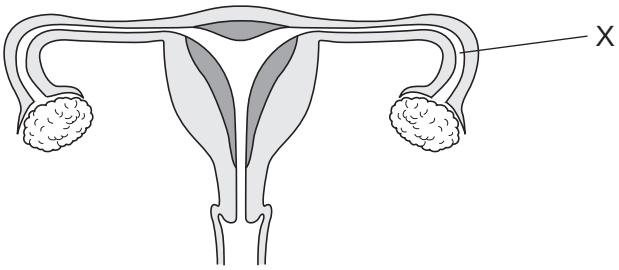
A condom

B contraceptive pill

C rhythm method

D vasectomy

27 The diagram shows the human female reproductive system.



Sometimes a woman may be unable to have a baby because the tube at X becomes blocked.

Which processes are prevented?

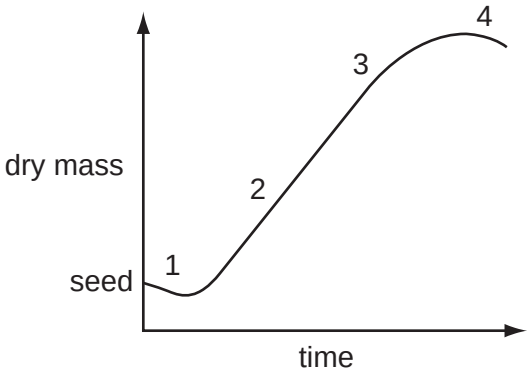
	fertilisation	implantation	ovulation
A	✓	✓	✓
B	✓	✓	✗
C	✗	✓	✓
D	✓	✗	✓

key

✓ = prevented

✗ = not prevented

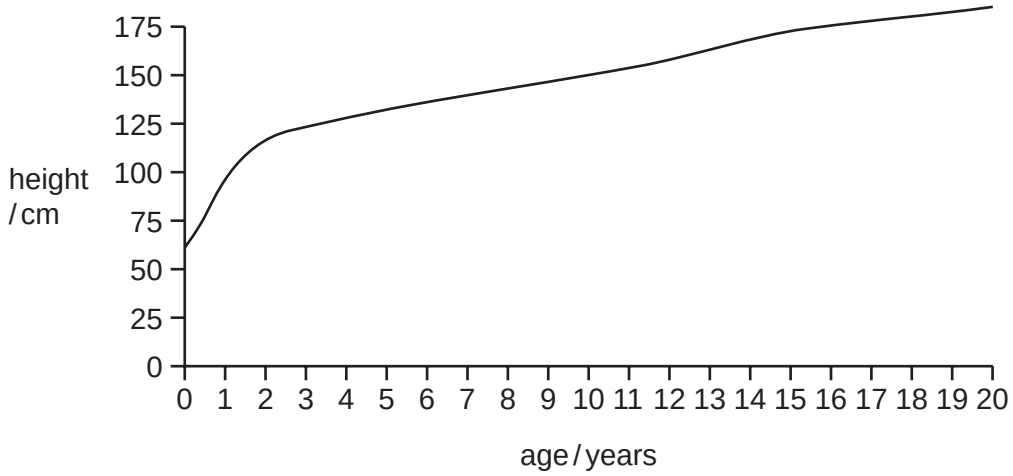
28 The graph shows the growth curve of a plant.



At which two stages is growth **not** occurring?

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

29 The diagram shows a typical human growth curve from birth to 20 years.



During which years is the growth rate greatest?

A 0 – 2 years

B 8 – 10 years

C 12 – 14 years

D 18 – 20 years

30 Albinism in humans is caused by a recessive allele.

Parents who do not suffer from the condition produce an albino child.

What is the probability that their second child will be born albino?

A 25% **B** 50% **C** 75% **D** 100%

31 An individual has the genotype **Bb**.

What is the correct description of this genotype?

A heterozygous, with two different alleles of the same gene

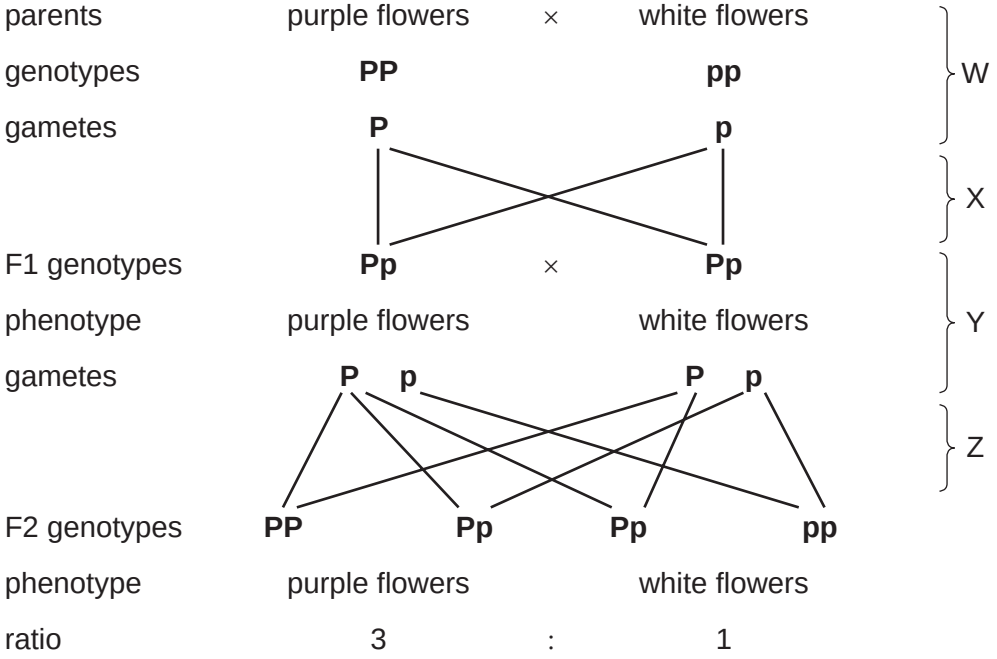
B heterozygous, with two different genes of the same allele

C homozygous, with two different alleles of the same gene

D homozygous, with two different genes of the same allele

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32 The diagram shows the inheritance of flower colour in pea plants.



At which stages in the diagram does meiosis occur?

A W and Y **B** W and Z **C** X and Y **D** X and Z

33 In an ecosystem, what happens to most of the chemical energy in the decomposers?

A It becomes heat.

B It is transferred back to the producers.

C It is transferred back to both producers and consumers.

D It is destroyed.

34 The three-toed sloth is a mammal that lives in the forests of Central America. Sloths are eaten by wild cats such as jaguars and also by snakes. The sloths mainly eat leaves.

What is the original source of the energy supplied to the jaguars?

A leaves

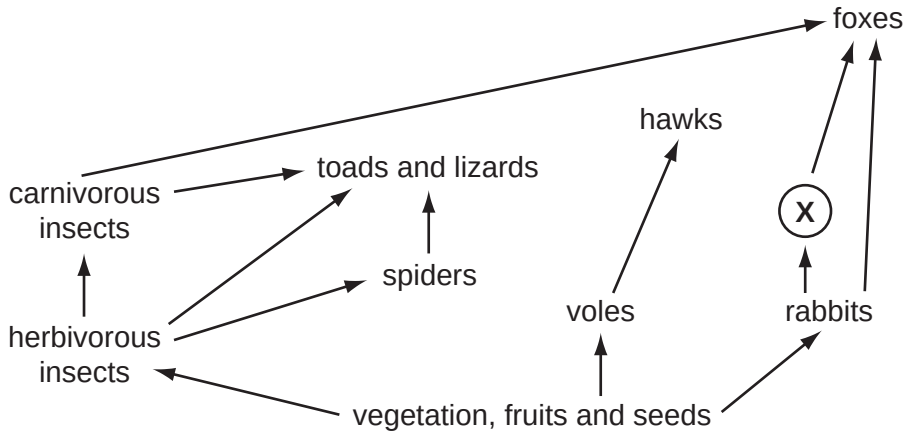
B sloths

C snakes

D Sun

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35 The diagram shows a food web.



What type of organism is **X**?

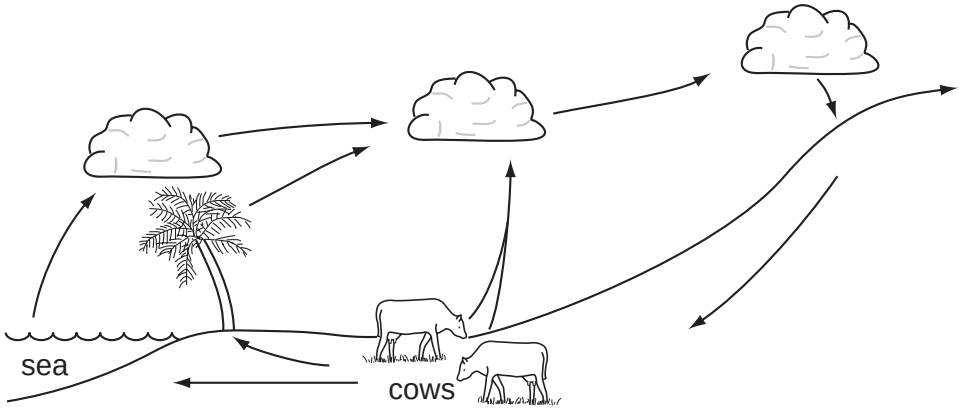
A a carnivore

B a decomposer

C a herbivore

D a producer

36 The diagram shows part of the water cycle.



What must occur for water in the sea to reach the cows?

A condensation only

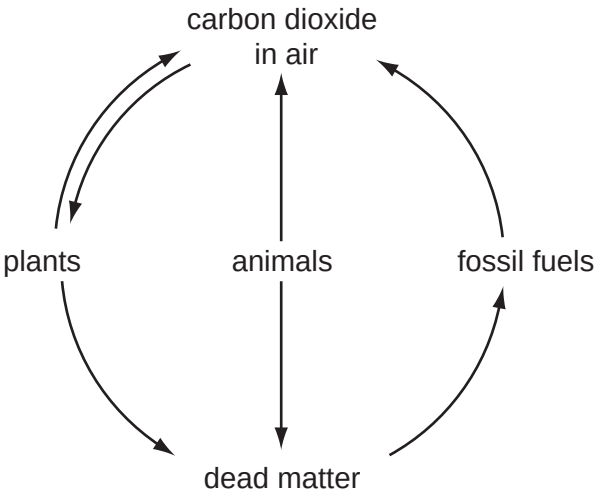
B condensation, then evaporation

C evaporation, then condensation

D evaporation only

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37 The diagram represents part of the carbon cycle.



What is missing from this diagram?

A an arrow from animals to plants

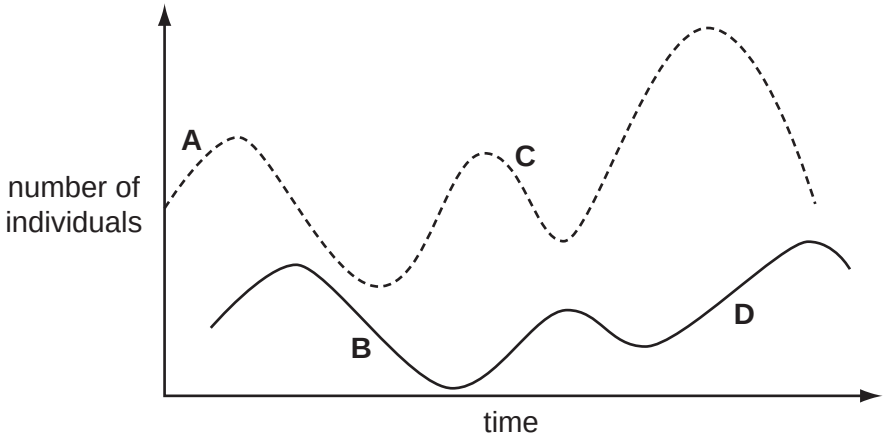
B an arrow from carbon dioxide in the air to animals

C an arrow from carbon dioxide in the air to fossil fuels

D an arrow from plants to animals

38 The graphs show the changes in the populations of predator and prey over a period of time.

Which point on the graph shows a decrease in predator population?



39 Which feature of deforestation has the greatest effect on the atmosphere?

A extinction of forest animal species

B increased risk of flooding

C reduction of photosynthesis

D soil erosion

40 In a pyramid of numbers, what does the top of the pyramid represent?

A carnivores

B decomposers

C herbivores

D Sun

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