UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

BIOLOGY **0610/01**

Paper 1 Multiple Choice **October/November 2007**

45 minutes

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

2900011271

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.

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.

This document consists of **17** printed pages and **3** blank pages.

1 What are characteristics of all organisms?

A egestion and excretion

B egestion and nutrition

C excretion and nutrition

D excretion and photosynthesis

2 The table shows the classification of four vertebrate animals.

	animal 1	animal 2	animal 3	animal 4
phylum	Chordata	Chordata	Chordata	Chordata
class	Mammalia	Mammalia	Mammalia	Mammalia
order	Dermoptera	Dermoptera	Dermoptera	Dermoptera
family	Lemuridae	Indridae	Lemuridae	Indridae
genus	*Eulemur*	*Propithecus*	*Eulemur*	*Avahi*
species	*fulvus*	*diadema*	*coronatus*	*laniger*

Which two organisms are **most** closely related?

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

3 Cacti have fewer stomata than other plants.

How does this help them to survive in desert conditions?

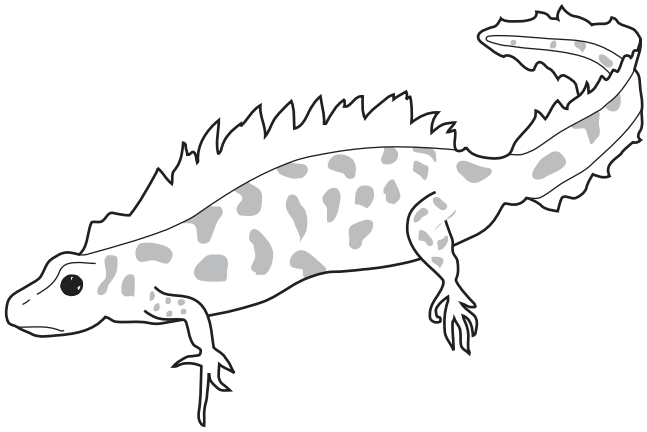
A It increases loss of water.

B It increases uptake of carbon dioxide.

C It reduces loss of water.

D It reduces uptake of carbon dioxide.

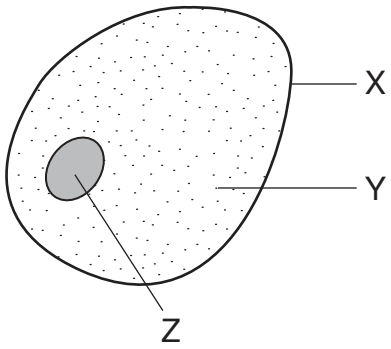
4 The diagram shows an animal.



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 The diagram shows a liver cell.



Which structures are also found in a root hair cell of a plant?

	X	Y	Z
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✗
D	✗	✗	✓

key

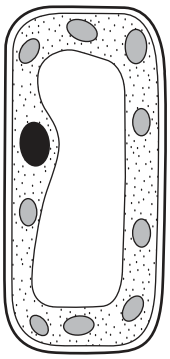
✓ = present in root hair cell

✗ = not present in root hair cell

6 The diagram shows four cells.

Which cell performs the function of contraction?

A



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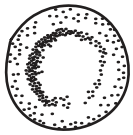

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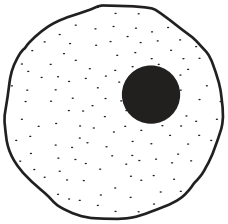


D

7 Which of these structures is a single tissue?

A chloroplast

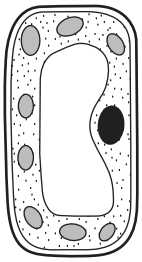
B phloem

C urethra

D uterus

8 Which diagram shows one organ only?

A



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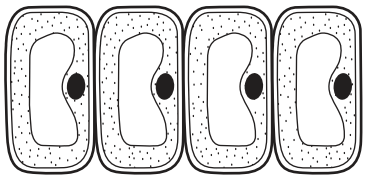
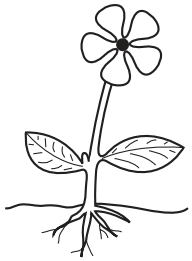
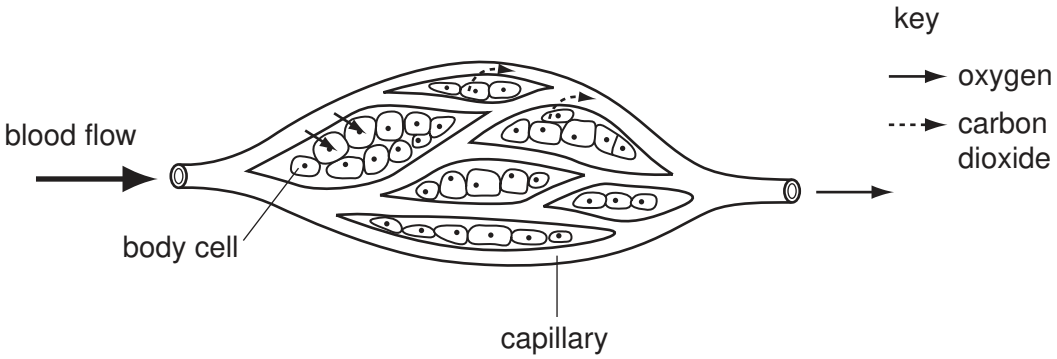


C

D



9 The arrows in the diagram show the movement of oxygen and carbon dioxide between body cells and the blood in capillaries.



By which process does this movement occur?

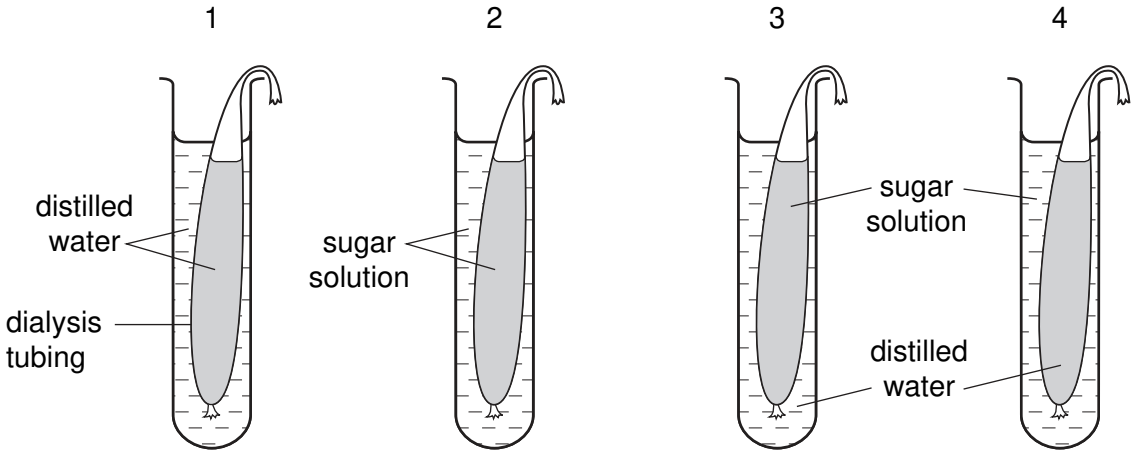
A diffusion

B excretion

C osmosis

D respiration

10 The diagram shows the apparatus used in an experiment on osmosis.



In which tubes will osmosis take place?

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

11 What helps proteins to change into amino acids?

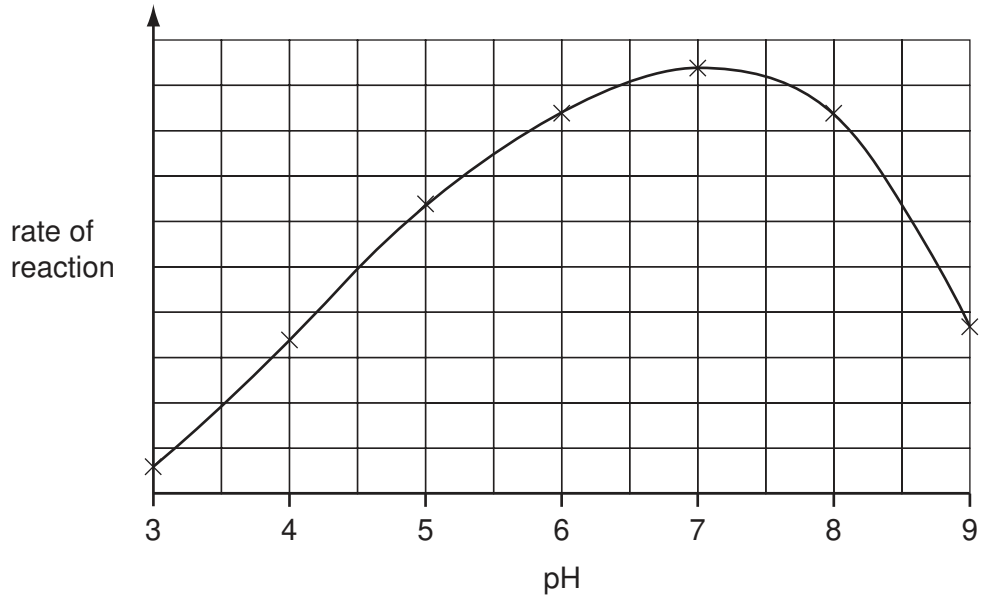
A antibodies

B auxins

C enzymes

D hormones

12 The graph shows the effect of pH on the rate of reaction of an enzyme.



What does the graph show?

A The enzyme is destroyed at pH 9.

B The enzyme works best at pH 6.

C The rate of reaction halves as the pH changes from pH 5 to pH 7.

D The rate of reaction is the same at pH 5 and pH 8.5.

13 What is the definition of *digestion*?

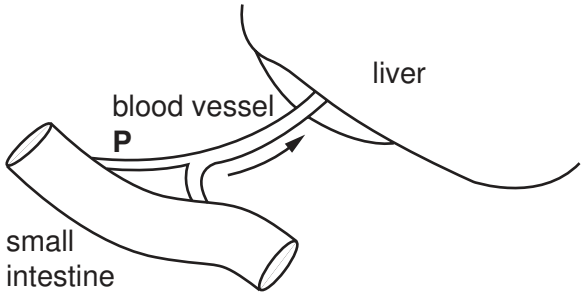
A Large insoluble molecules are changed into faeces.

B Large insoluble molecules are changed into smaller soluble molecules.

C Small soluble molecules are carried to the liver.

D Small soluble molecules are passed through the wall of the intestine.

14 The diagram shows blood vessel **P** which carries digested food from the small intestine to the liver.

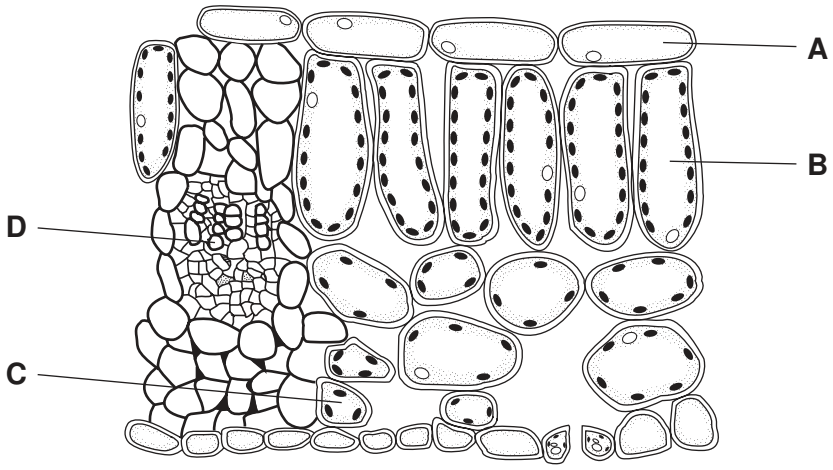


What describes the level of glucose in blood vessel **P** and the level of glycogen in the liver, shortly after a meal containing carbohydrates?

	glucose in blood vessel **P**	glycogen in liver
A	high	decreasing
B	high	increasing
C	low	decreasing
D	low	increasing

15 The diagram shows a section through a leaf, seen under the microscope.

In which part is the carbon dioxide concentration **lowest** on a warm sunny day?

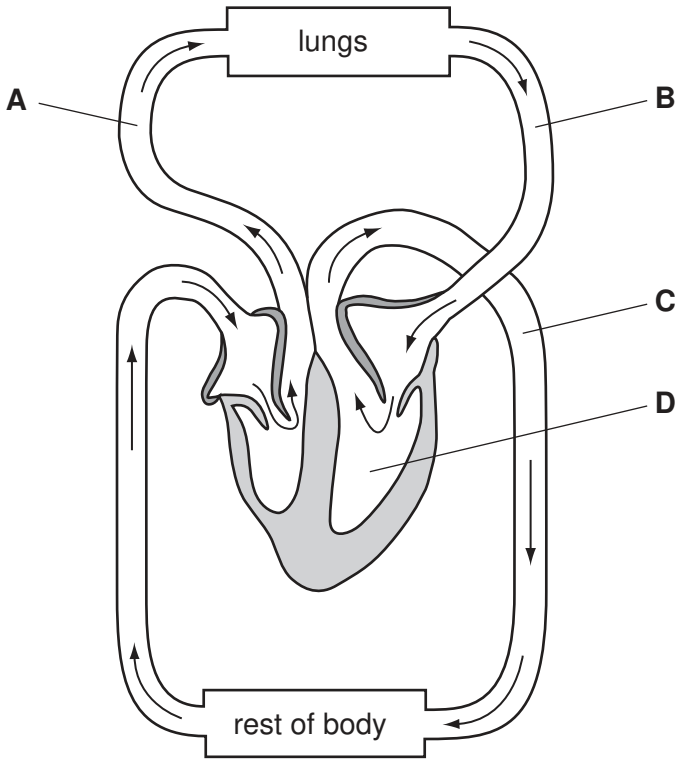


16 What shows the correct translocation of carbohydrate in a potato plant that is growing in bright sunlight?

	source of carbohydrate	type of carbohydrate translocated	destination of carbohydrate
A	leaves	glucose	tubers
B	leaves	sucrose	tubers
C	tubers	glucose	leaves
D	tubers	sucrose	leaves

17 The diagram shows part of the human circulatory system.

Which part carries oxygenated blood at low pressure?



18 Which conditions of humidity, light intensity and temperature make transpiration slowest?

	humidity / %	light intensity	temperature / °C
A	10	high	4
B	10	low	14
C	80	high	14
D	80	low	4

19 What are features of gaseous exchange surfaces in animals?

A thick-walled, dry, large area

B thick-walled, moist, small area

C thin-walled, dry, small area

D thin-walled, moist, large area

20 An athlete produces lactic acid in the leg muscles while running a race. After the race he is seen to breathe faster and deeper.

How does this help to remove the lactic acid?

A More carbon dioxide is used up.

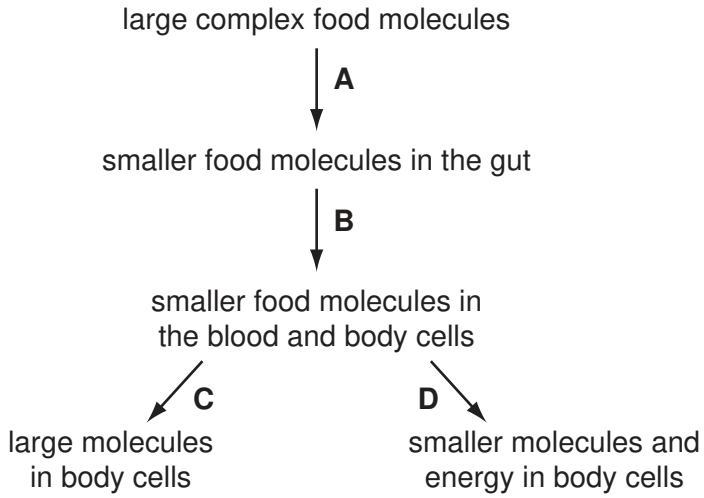
B More energy is needed.

C More lactic acid is breathed out.

D More oxygen is breathed in.

21 The flow diagram shows what happens to food in humans.

Which stage shows human respiration?



22 Blood is filtered in the kidneys. After this filtration, some substances are reabsorbed into the blood and other substances pass out of the body in the urine.

Which line shows the correct movement of substances in a healthy person?

	substances reabsorbed into the blood	substances passed out of the body in the urine
A	glucose, some salts, urea	glucose, some salts, some water
B	glucose, some salts, some water	some salts, some water, urea
C	some salts, some water, urea	glucose, some water, urea
D	some salts, some water, urea	glucose, some salts, some water

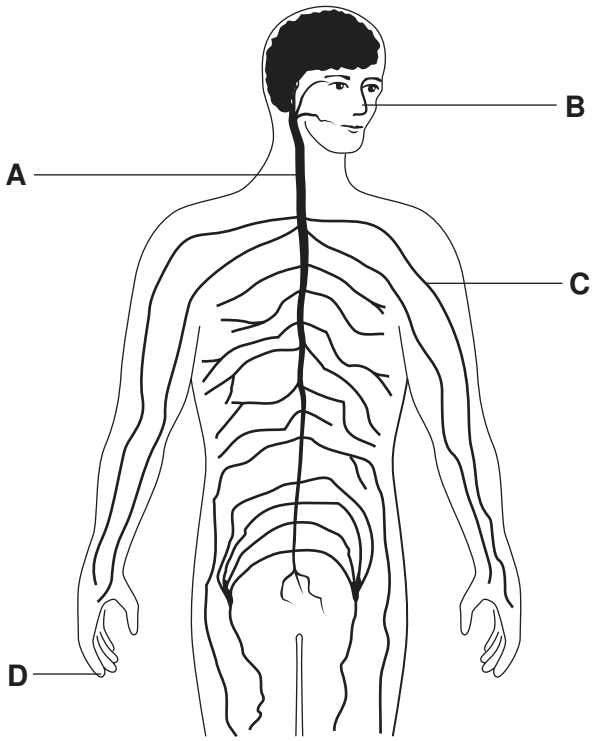
23 Four urine samples were collected on different days from a person whose exercise and water intake was the same each day.

Which sample was collected on a cold day?

	volume of urine produced / dm^3	volume of sweat produced / dm^3
A	1.5	0.8
B	0.8	0.8
C	0.8	1.5
D	0.4	0.8

24 The diagram shows the human nervous system.

Which letter indicates a part of the central nervous system?



25 The diagram shows a person sweating in hot weather.

What part is played by sweat glands during the process of sweating?

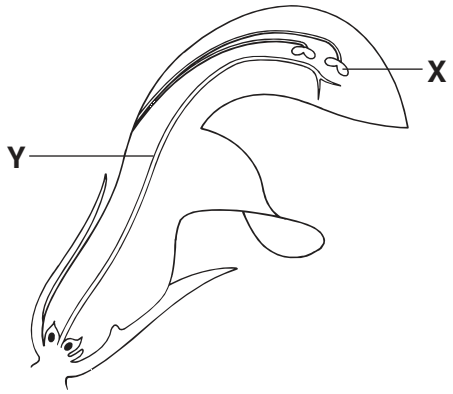
A effector

B receptor

C sense-organ

D stimulus

26 The diagram shows a vertical section through a flower.

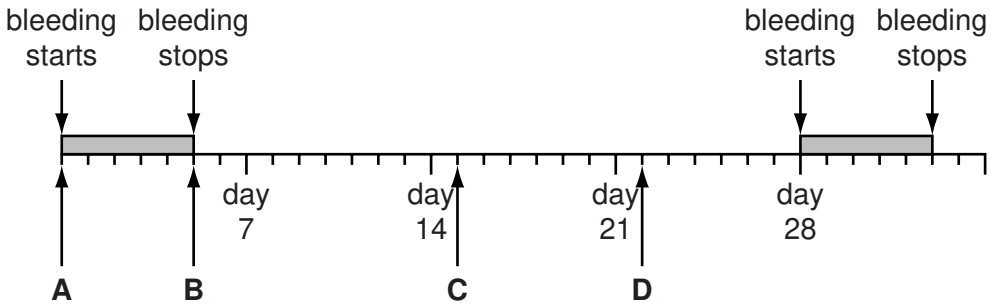


What are **X** and **Y**?

	X	Y
A	anther	filament
B	anther	style
C	filament	stigma
D	stigma	style

27 The diagram shows a woman's menstrual cycle.

On which day is intercourse most likely to result in the woman becoming pregnant?



28 What must always be available to seeds before they germinate?

A carbon dioxide

B light

C mineral salts

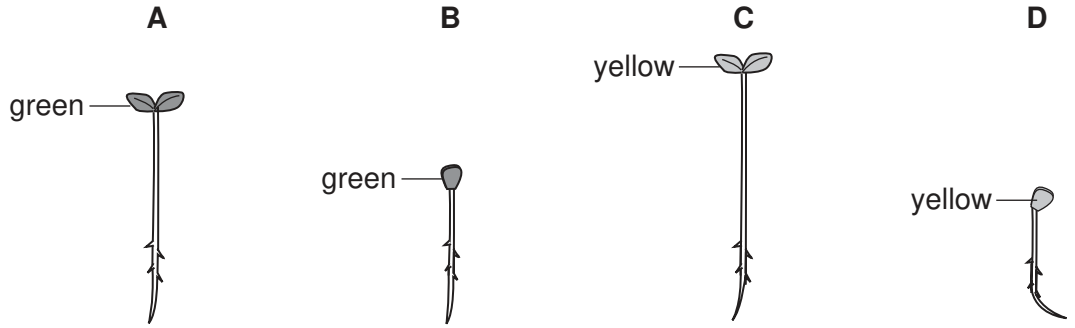
D oxygen

29 Four samples of seeds were allowed to germinate in different conditions of temperature and light, as shown in the table.

sample	temperature (°C)	light
1	20	absent
2	20	present
3	5	absent
4	5	present

A typical seedling from each sample was removed after seven days.

Which seedling was from sample 4?



30 What causes humans to have different blood groups?

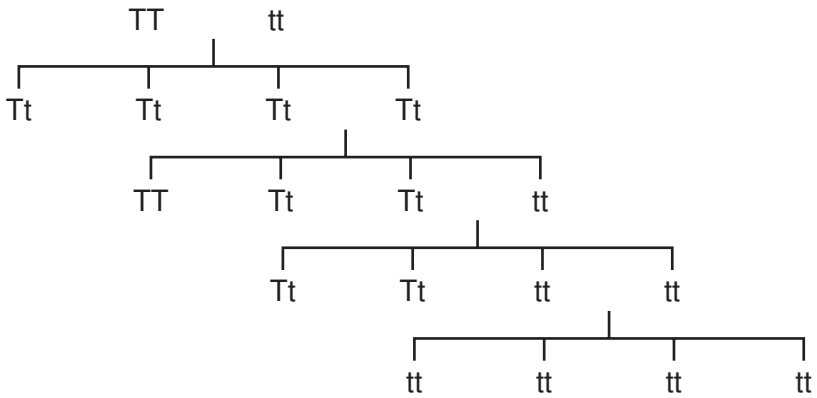
A differences in climates

B differences in diets

C differences in genes

D differences in hormones

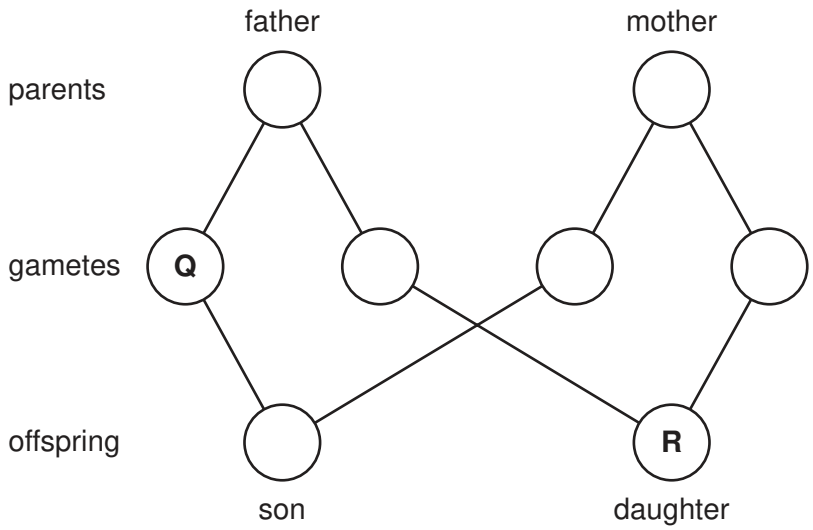
31 The genetic diagram shows a breeding experiment that starts with crossing a homozygous tall plant (TT) with a homozygous short plant (tt).



Which genetic cross gives 1 : 1 phenotypic and genotypic ratios?

A Tt × Tt **B** TT × tt **C** Tt × tt **D** tt × tt

32 The diagram shows the fusion of gametes to produce a son and a daughter.



What are the sex chromosomes in gamete **Q** and daughter **R**?

	Q	**R**
A	X	XX
B	X	XY
C	Y	XX
D	Y	XY

33 The diagram shows organisms feeding on a dead rat and one of the organisms which, in turn, feeds on them.

What is needed to complete the food chain?

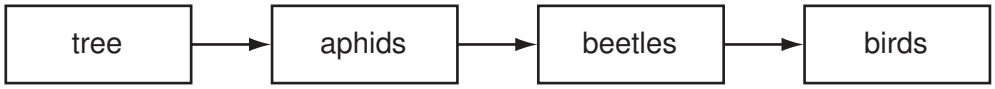
A carnivore

B consumer

C predator

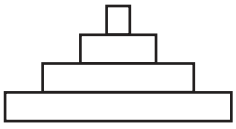
D producer

34 The diagram shows a food chain based on a tree.

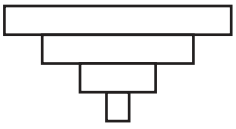


Which diagram shows a pyramid of biomass for this food chain?

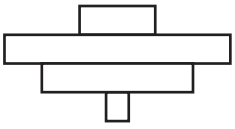
A



B



C



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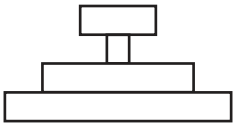


35 From which food chain is **least** energy lost?

A corn → hens → humans

B grass → cows → humans

C potatoes → humans

D water plants → small fish → large fish → humans

36 In which process is oxygen a waste product?

A active transport

B aerobic respiration

C anaerobic respiration

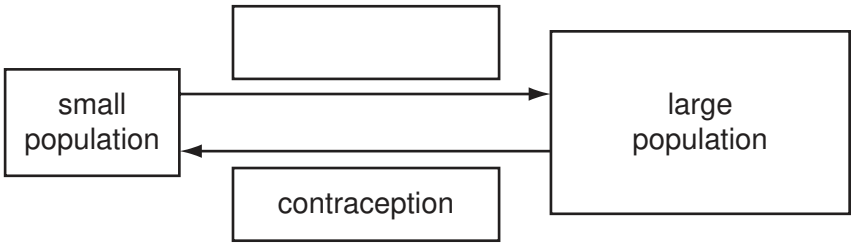
D photosynthesis

37 The diagram shows the movement of two gases during the day and during the night.

Which letters represent carbon dioxide?

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

38 The diagram shows part of a chart explaining the effect of different factors on a human population.



Which factor goes in the empty box?

A crop failure

B disease

C improved health care

D natural disaster

39 A large amount of herbicide is applied to a field. Heavy rainfall carries much of it into a nearby lake.

What will be the effect of this on the lake?

A Herbicide decreases the growth of water plants.

B Herbicide decreases the number of bacteria.

C Herbicide increases the rate of evaporation from the lake.

D Herbicide kills the fish.

40 The table shows the amount of carbon dioxide in the atmosphere in three different years.

year	1930	1980	1990
carbon dioxide / parts per million	300	330	370

What is the most likely cause of this change?

A destruction of rainforests

B increased use of fertilisers containing nitrogen

C pollution of air by sulphur dioxide

D rise in the sea level

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