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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/13**

Paper 1 Multiple Choice (Core) **May/June 2019**

45 minutes

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

0029173015

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.

This syllabus is regulated 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 Students find a small organism in a pond. They catch it and put it into a large jar of water. They see that the organism swims away from light. It lays some eggs before they put it back into the pond.

Which characteristics of living things did the students see in this organism?

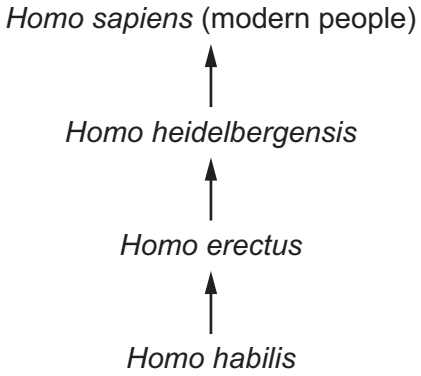
A excretion, growth and respiration

B growth, nutrition and sensitivity

C movement, reproduction and sensitivity

D movement, reproduction and respiration

2 The diagram shows how *Homo sapiens* (modern people) could have evolved from earlier ancestors.



Which statement about modern people and their ancestors is correct?

A They are in the same species and the same genus.

B They are in the same species but not the same genus.

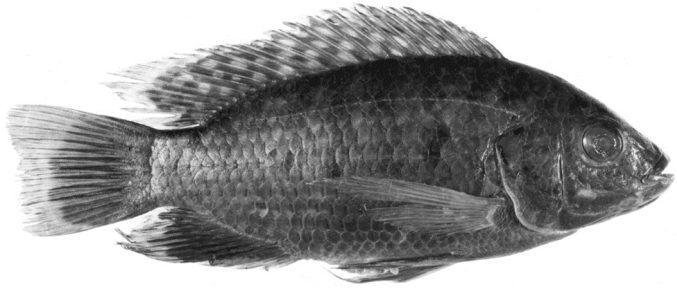
C They are in the same genus but not the same species.

D They are neither the same species nor the same genus.

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3 The photograph shows an organism.



Use the key to identify the organism.

1 The mouth is at the front of the head. ..... go to 2

The mouth is between the eye and the fins. ..... **A**

2 The long fin on the back has pale spots. ..... go to 3

There are no spots on the long fin. ..... **B**

3 The tail fin is longer than the body. ..... **C**

The tail fin is shorter than the body. ..... **D**

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

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

key

✓ = present

✗ = absent

5 Which level of organisation is shown by the oesophagus, pancreas, stomach and liver?

A cells

B organs

C organisms

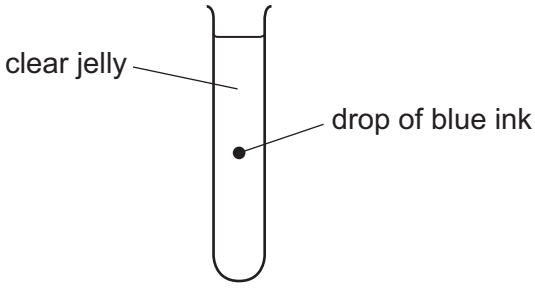
D tissues

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6 The diagram shows a test-tube containing clear jelly. A drop of blue ink is injected into the middle of the jelly.



The blue colour of the ink spreads throughout the jelly.

By which process does the blue ink spread through the jelly?

A active transport

B catalysis

C diffusion

D osmosis

7 Which row describes active transport?

	movement of water	uses energy from respiration	through a cell membrane
A	yes	no	no
B	yes	no	yes
C	no	yes	no
D	no	yes	yes

8 Which reagent is used when testing a food for vitamin C?

A Benedict's solution

B DCPIP

C ethanol

D iodine solution

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9 Small molecules are used as the basic units in the synthesis of large food molecules.

Which statement is correct?

A Amino acids are basic units of carbohydrates.

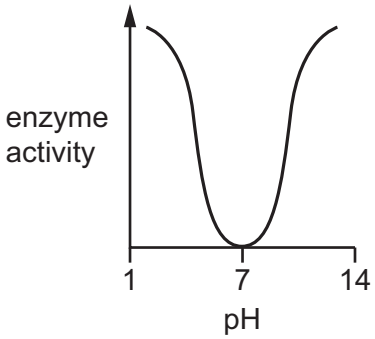
B Fatty acids are basic units of glycogen.

C Glycerol is a basic unit of oils.

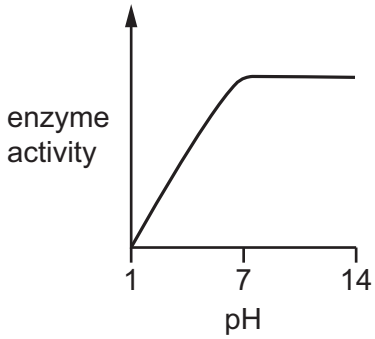
D Simple sugar is a basic unit of protein.

10 Which graph shows the effect of pH on enzyme activity?

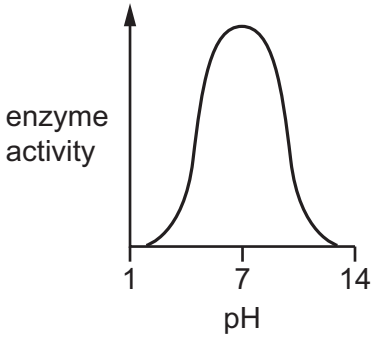
A



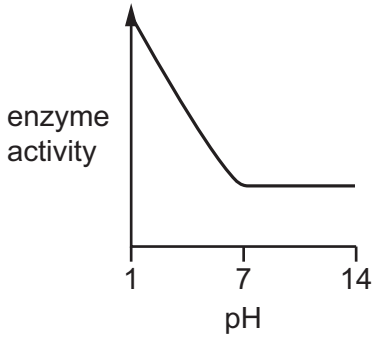
B



C



D



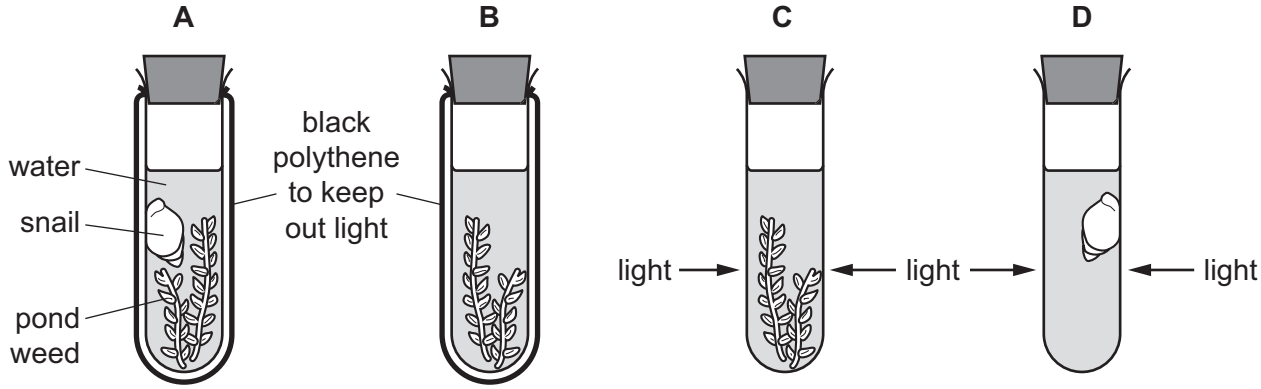
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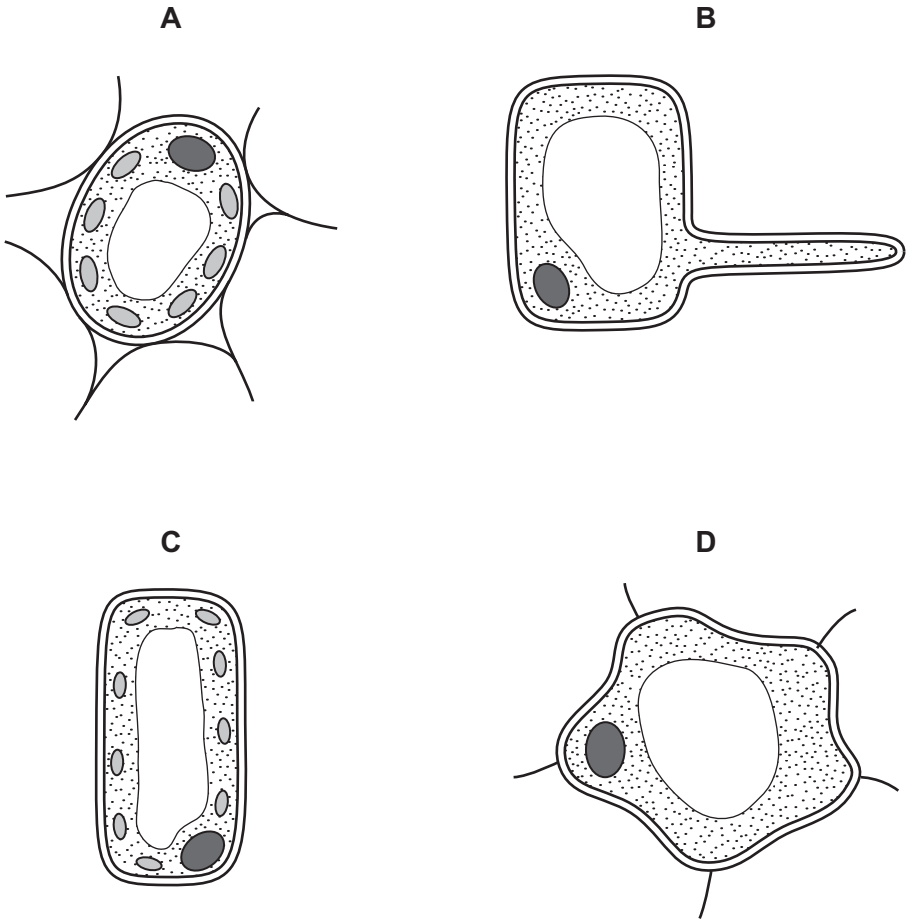
11 The diagram shows an experiment to investigate the balance between respiration and photosynthesis.

In which tube are photosynthesis and respiration taking place at the same time?



12 The diagrams show the structure of four different cells from a plant.

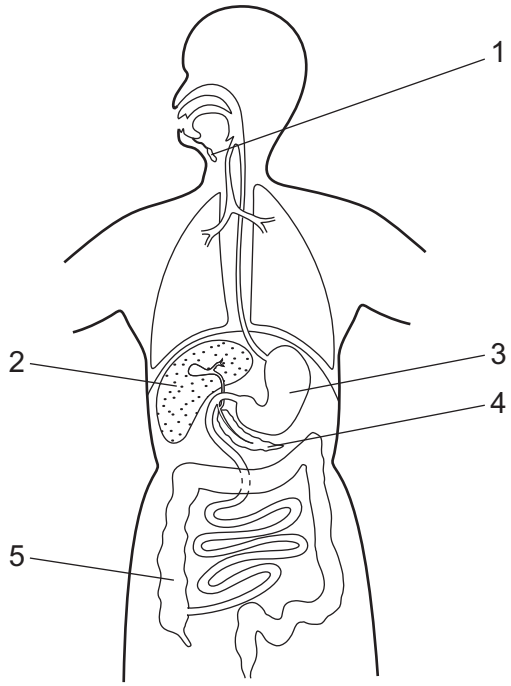
Which cell is from the upper epidermis of a leaf?



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13 The diagram shows the human alimentary canal.



Which pair of structures both produce digestive enzymes?

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

14 Where is water absorbed?

A colon and small intestine

B large intestine only

C liver and colon

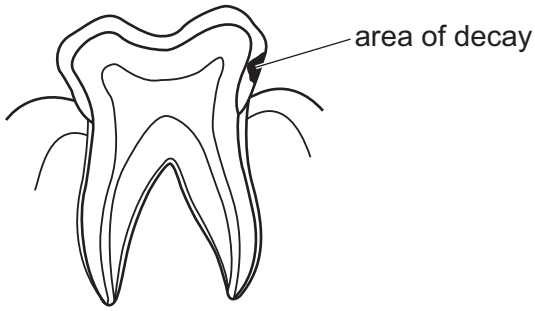
D small intestine only

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15 The diagram shows a human tooth with an area of decay.



What is likely to have caused the decay?

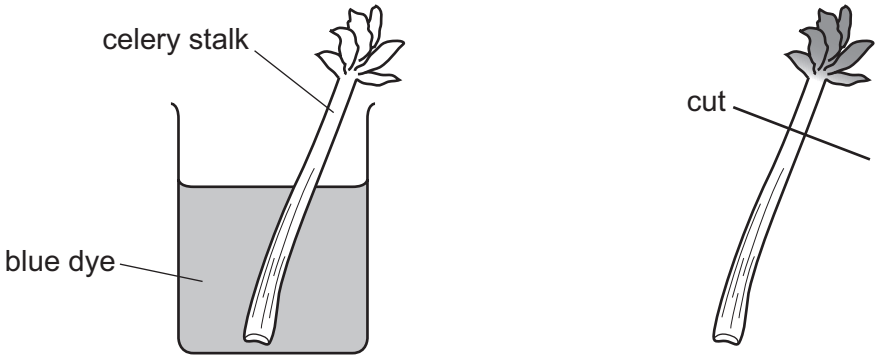
A acids released by bacteria

B digestion of the tooth by bacteria

C excess of fat in the food

D lack of fibre in the food

16 A celery stalk was placed into a beaker of blue dye. When the dye reached the leaves, the stalk was taken out and a section was cut, as shown in the diagram.

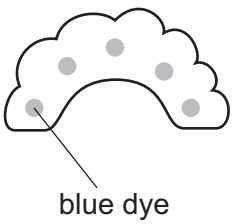


Which diagram shows the appearance of the cut end of the stalk?

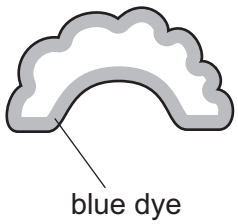
A



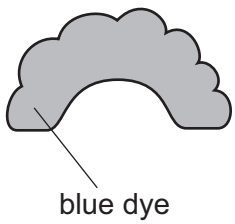
B



C



D



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17 The table shows the rate of water flow through a tree over a 12 hour period.

time of day	rate of flow / cm per hour
7:00	100
9:00	120
11:00	140
13:00	250
15:00	300
17:00	260
19:00	180

What conclusion can be drawn from the table?

A Between 7:00 and 17:00 hours the rate of flow continuously increases.

B The greatest increase in rate of flow in a two-hour period is between 11:00 and 13:00 hours.

C Water does not flow up through a tree at night.

D Water flow is affected by humidity.

18 What is the correct order of blood flow through the blood vessels entering and leaving the heart?

A aorta → pulmonary artery → pulmonary vein → vena cava

B aorta → pulmonary vein → pulmonary artery → vena cava

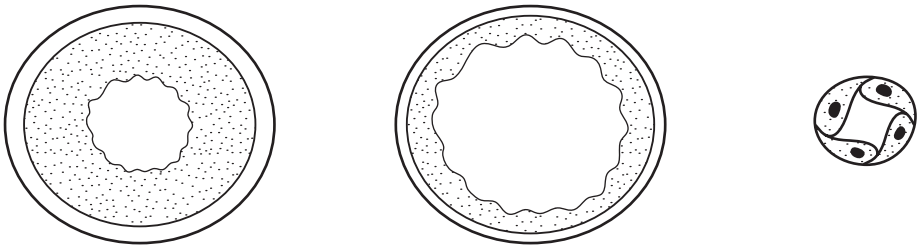
C vena cava → pulmonary artery → pulmonary vein → aorta

D vena cava → pulmonary vein → pulmonary artery → aorta

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19 The diagram shows cross-sections through three types of blood vessel, **not** drawn to the same scale.



V W X

Which section is from a vein and which is from a capillary?

	vein	capillary
A	V	W
B	W	V
C	W	X
D	X	W

20 By which route would an HIV infection **not** be transmissible?

A blood

B saliva

C sharing needles for injections

D semen

21 What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

22 Which process uses energy released by respiration?

A diffusion

B evaporation

C growth

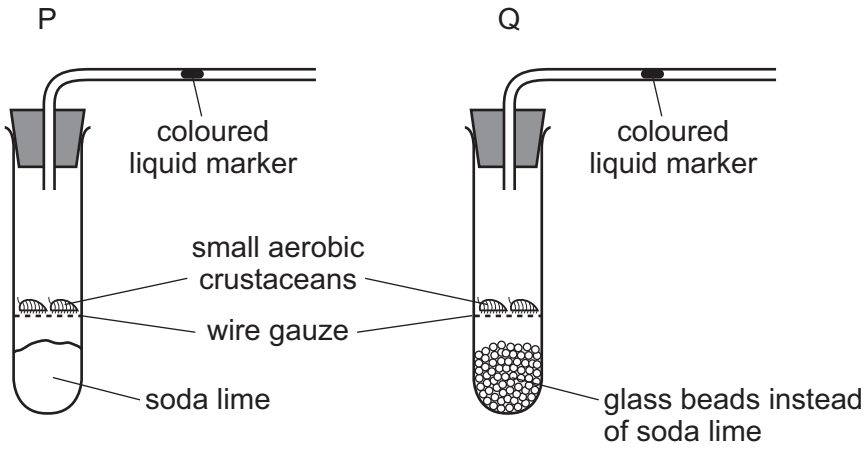
D osmosis

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23 The diagram shows two experiments investigating gas exchange in small aerobic crustaceans.

Soda lime absorbs carbon dioxide.



Which way does the liquid marker move?

	P	Q
A	left	right
B	left	stays still
C	right	left
D	right	stays still

24 Yeast is placed inside a container full of a glucose solution with no air.

Which word equation summarises the process that takes place inside the container?

A glucose → ethanol + carbon dioxide

B glucose → lactic acid

C glucose + oxygen → carbon dioxide + water

D glucose + oxygen → ethanol

25 What is a function of the kidneys?

A breakdown of hormones

B formation of urea

C removal of oxygen

D removal of urea

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26 Which list describes the correct sequence of a simple reflex arc?

A receptor, relay neurone, motor neurone, sensory neurone, effector

B receptor, relay neurone, sensory neurone, motor neurone, effector

C receptor, sensory neurone, motor neurone, relay neurone, effector

D receptor, sensory neurone, relay neurone, motor neurone, effector

27 What are the effects on the body when adrenaline is released?

	breathing rate and pulse rate	pupil diameter
A	decreases	decreases
B	decreases	increases
C	increases	increases
D	increases	decreases

28 Which effects does excessive alcohol consumption have on the body?

	acts as a stimulant	increases reaction time
A	yes	yes
B	yes	no
C	no	yes
D	no	no

29 Female greenfly can multiply by producing eggs by mitosis. These eggs are not fertilised, but they develop into a new generation of female greenfly.

What is this type of reproduction?

A asexual reproduction, leading to genetically different offspring

B asexual reproduction, leading to genetically identical offspring

C sexual reproduction, leading to genetically different offspring

D sexual reproduction, leading to genetically identical offspring

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30 What is **not** essential for germination?

A carbon dioxide

B oxygen

C warmth

D water

31 Which is the main hormone responsible for the development of male secondary sexual characteristics?

A adrenaline

B insulin

C oestrogen

D testosterone

32 What determines the sex of a baby?

A the father's XX chromosomes

B the father's XY chromosomes

C the mother's XX chromosomes

D the mother's XY chromosomes

33 In fruit flies, the allele for grey body, G, is dominant over the allele for black body, g.

The result of a mating between two flies is shown.

	parent 1		parent 2
(parents)	grey-bodied fly	×	black-bodied fly
	↓		
(offspring)	40 grey-bodied flies + 42 black-bodied flies		

What were the genotypes of the parents?

	parent 1	parent 2
A	Gg	gg
B	gg	Gg
C	GG	gg
D	gg	GG

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34 Which is a genetic change?

A allele

B genotype

C mutation

D phenotype

35 Wheat is a crop plant. Since the 1960s the average yield of wheat has doubled. A reason for this is that modern wheat varieties have shorter, stronger stems and more seeds per stem.

What has caused these changes?

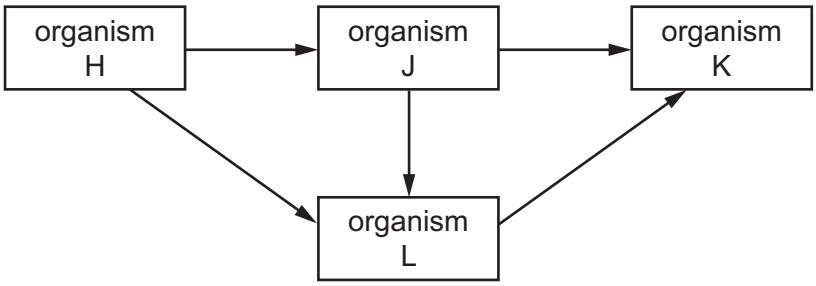
A competition for resources between individuals

B reproduction by individuals better adapted to their environment

C selection of individuals with desirable characteristics by humans

D struggle for survival between individuals

36 Letters H, J, K and L show the organisms that make up a simple food web.



What must organism H be?

A a carnivore

B a decomposer

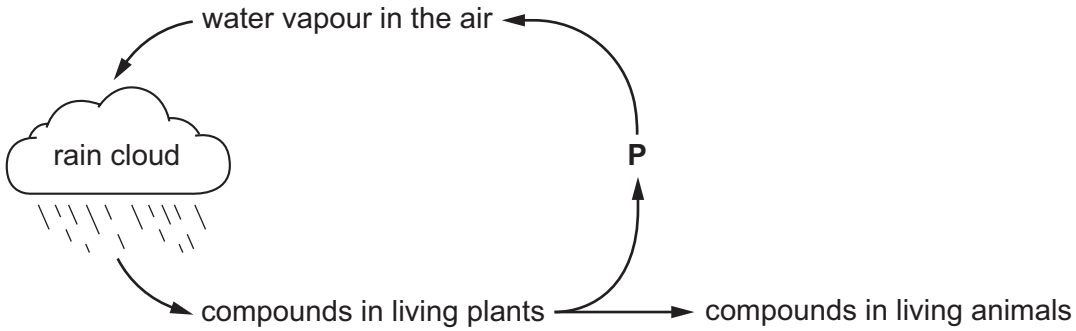
C a herbivore

D a producer

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37 The diagram shows part of the water cycle.



Which process in living plants is responsible for returning water vapour to the air at **P**?

A combustion

B condensation

C photosynthesis

D transpiration

38 Bacteria are useful for manufacturing products for human use.

Which statement explains why they are useful?

A Bacteria can be grown without nutrients.

B Bacteria do not have a nucleus.

C Bacteria infect human cells.

D Bacteria reproduce very rapidly.

39 Which of the processes involved in genetic engineering uses a human gene?

A herbicide resistance

B pesticide resistance

C insulin production in bacteria

D vitamin production in plants

40 What is an undesirable effect of deforestation?

A habitat creation

B loss of soil

C more species

D reduced carbon dioxide in the atmosphere

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