Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/12**

Paper 1 Multiple Choice (Core) **May/June 2018**

45 minutes

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

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

This document consists of **16** printed pages.

1 Which organisms carry out respiration, growth, movement and excretion?

A all animals and all plants

B animals only

C arthropods and flowering plants only

D plants only

2 The diagram shows an animal whose scientific name is *Falco peregrinus*.

To which species does it belong?

A bird

B *F. peregrinus*

C *Falco*

D vertebrate

3 What kind of skin do amphibians have?

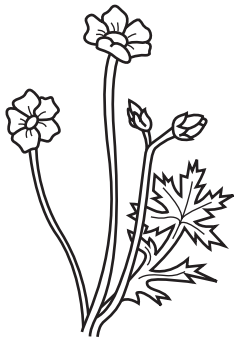
A dry without scales

B dry with scales

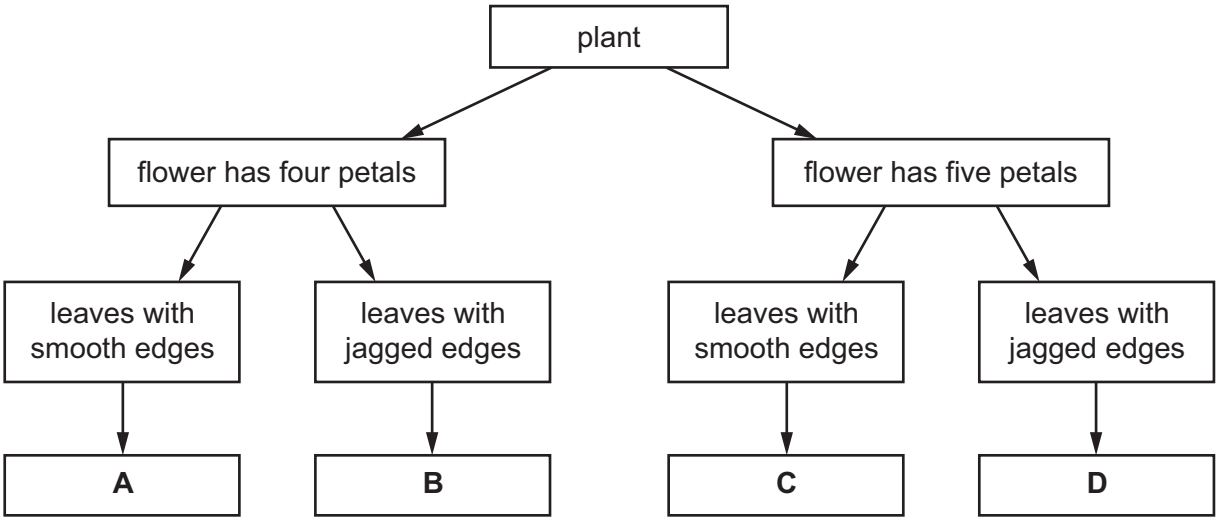
C moist without scales

D moist with scales

4 The diagram shows a flowering plant.

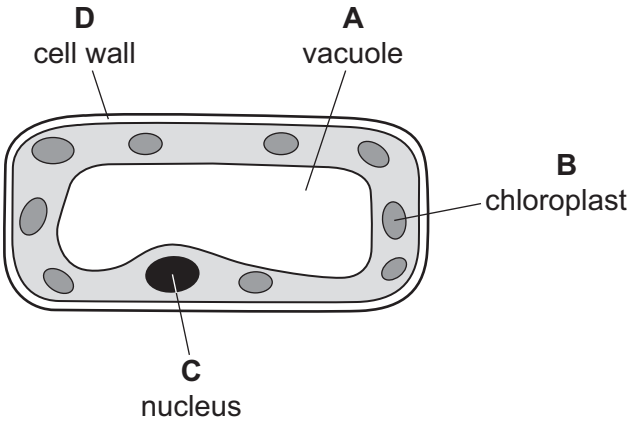


Use the key to identify the plant.



5 The diagram shows a plant cell.

In which labelled part of the cell is sugar made?



6 Why do some root cells have root hairs?

A for the maintenance of the temperature of the cell sap

B to increase the surface area of the cells

C to increase the volume of the cell sap

D to provide a place for cell nuclei

7 The table shows the concentration of gases in a blood vessel and in an alveolus.

Which row shows the conditions that cause a gas produced in respiration to diffuse from the blood vessel into the alveolus?

	gas produced	concentration in the blood vessel	concentration in the alveolus
A	carbon dioxide	low	high
B	carbon dioxide	high	low
C	oxygen	low	high
D	oxygen	high	low

8 Which part of a plant root hair is partially permeable?

A the cell sap

B the cell surface membrane

C the cell vacuole

D the cell wall

9 The table shows the results of food tests carried out on a fruit.

test	Benedict's	biuret	ethanol	iodine
result	positive	positive	negative	negative

What did the fruit contain?

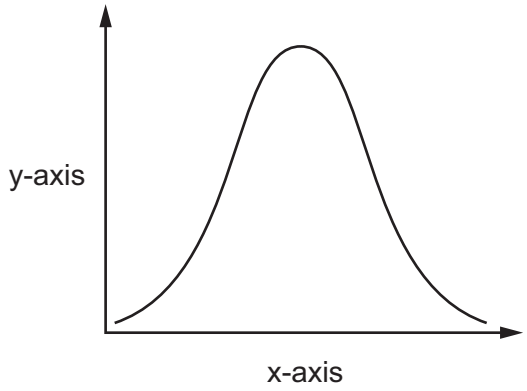
A fat and reducing sugar

B fat and starch

C protein and reducing sugar

D protein and starch

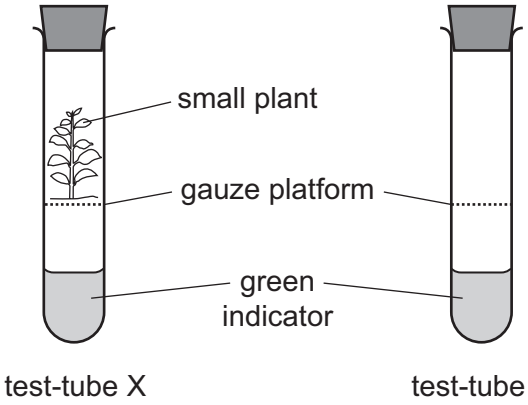
10 An experiment was carried out to investigate the effect of pH on enzyme action. The graph shows the results.



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 An experiment is set up as shown.



The green indicator turns yellow when the concentration of carbon dioxide increases. The green indicator turns blue when the concentration of carbon dioxide decreases.

After several hours, the indicator in test-tube X turned blue. The indicator in test-tube Y remained green.

Which process caused the colour change?

A germination

B photosynthesis

C respiration

D transpiration

12 Why do plants need nitrate ions?

A for making amino acids

B for making fatty acids

C for making glucose

D for making starch

13 In which part of the alimentary canal do chemical digestion and mechanical digestion take place?

A colon

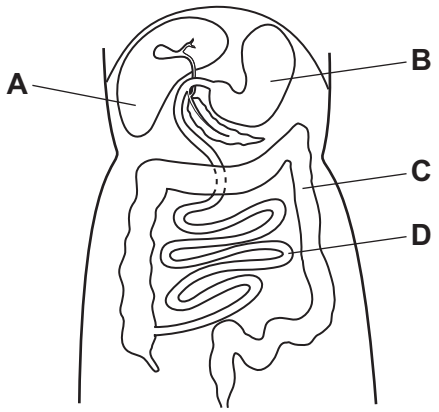
B duodenum

C mouth

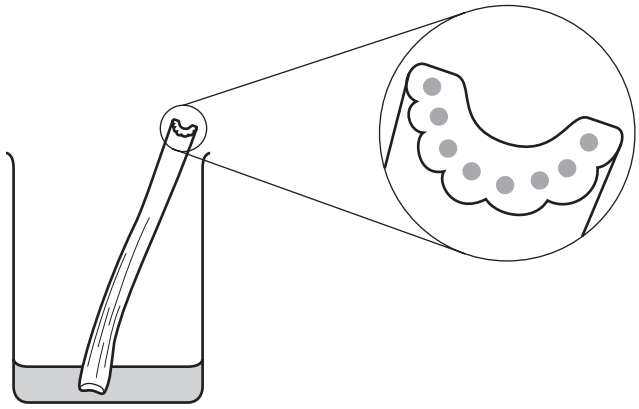
D oesophagus

14 The diagram shows part of the alimentary canal.

Where is most water absorbed?



15 A celery stalk was placed in a beaker which contained a red stain. After 24 hours, the red stain appeared at the top of the celery stalk.



Which structures stained red?

A cortex cells

B mesophyll cells

C phloem

D xylem

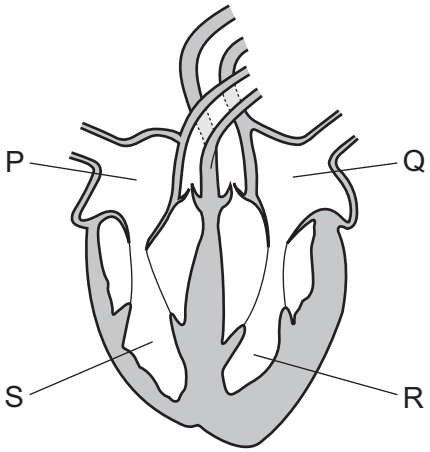
16 A student is investigating the effect of temperature on the rate of transpiration.

Which environmental conditions should be kept constant during this investigation?

	humidity	light intensity	temperature	wind speed
A	✓	✓	✓	✓
B	✓	✓	✗	✓
C	✗	✓	✗	✓
D	✗	✗	✓	✗

[Turn over

17 The diagram shows the human heart.



In which order does blood pass through the chambers during a complete circuit of the body after it returns from the lungs?

A Q → R → S → P

B Q → R → P → S

C P → S → Q → R

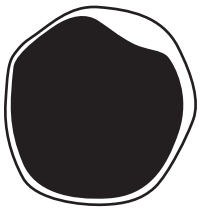
D P → S → R → Q

18 The diagrams show some components of the blood of a mammal.

Which component causes the blood to start clotting?

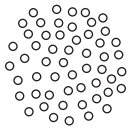
A

B



C

D



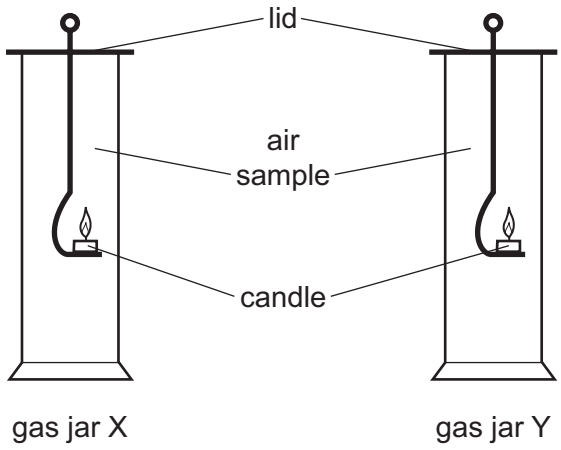
19 The body produces mucus as a defence against diseases.

What type of defence is stomach acid?

	cells	chemical barrier	mechanical barrier
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✗
D	✗	✗	✓

20 A sample of expired air is collected in a gas jar. Another gas jar contains normal atmospheric air.

A lighted candle is placed inside each gas jar as shown. The time taken for each flame to go out is measured. As the candles burn they use up the oxygen available in the jar.



The table shows the results of this experiment.

gas jar	time for candle flame to go out / s
X	15
Y	9

What is an explanation of the difference between the results in jars X and Y?

A Jar X contains atmospheric air which has more carbon dioxide.

B Jar X contains expired air which has more carbon dioxide.

C Jar Y contains atmospheric air which has less oxygen.

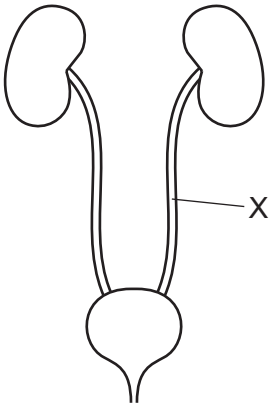
D Jar Y contains expired air which has less oxygen.

21 Which row describes anaerobic respiration?

	energy released	oxygen required	waste products
A	a little	no	lactic acid
B	a little	yes	carbon dioxide and water
C	a lot	no	lactic acid
D	a lot	yes	carbon dioxide and water

[Turn over

22 The diagram shows the excretory system.



What is structure X?

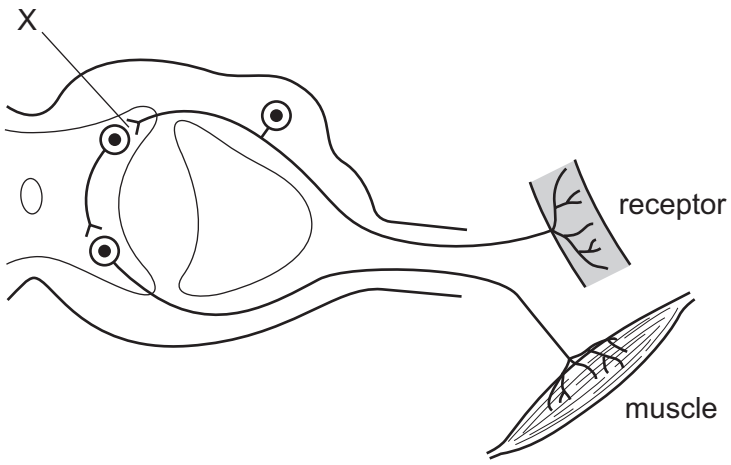
A bladder

B kidney

C ureter

D urethra

23 The diagram shows structures in a reflex arc.



What is X?

A effector

B relay neurone

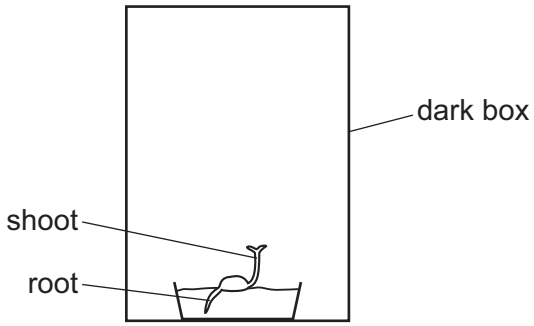
C sensory neurone

D synapse

24 Which row describes the effect of the hormone adrenaline on breathing rate, pulse rate and pupil size?

	breathing rate	pulse rate	pupil size
A	decrease	decrease	larger
B	decrease	increase	smaller
C	increase	decrease	smaller
D	increase	increase	larger

25 The diagram shows a seedling growing inside a dark box.



What type of responses affect the direction of growth of the root and the shoot in this experiment?

	response by the root	response by the shoot
A	gravitropism	gravitropism
B	gravitropism	phototropism
C	phototropism	gravitropism
D	phototropism	phototropism

26 What is the definition of a drug?

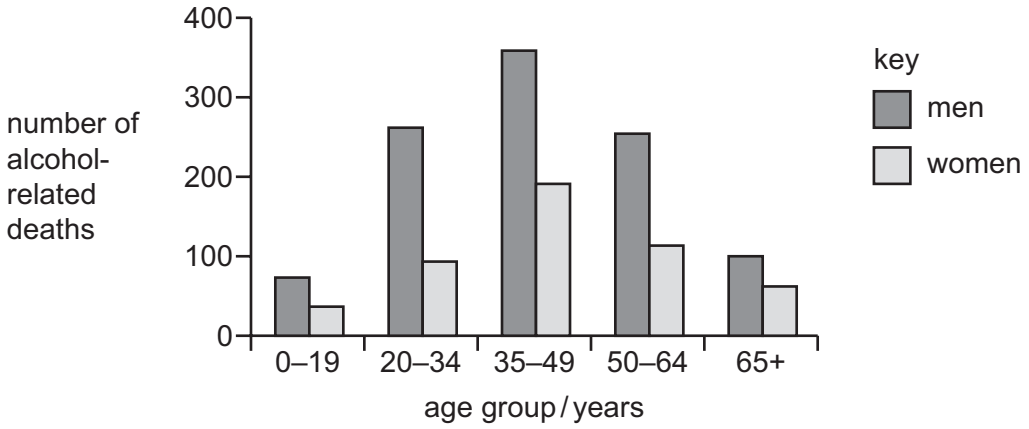
A any illegal substance taken into the body

B any substance taken into the body

C any substance taken into the body that modifies or affects chemical reactions in the body

D any substance taken into the body which is not a medicine

27 The graph shows the number of alcohol-related deaths in men and women between the years 2001 and 2005 in one country.



Which conclusion is supported by the data in the graph?

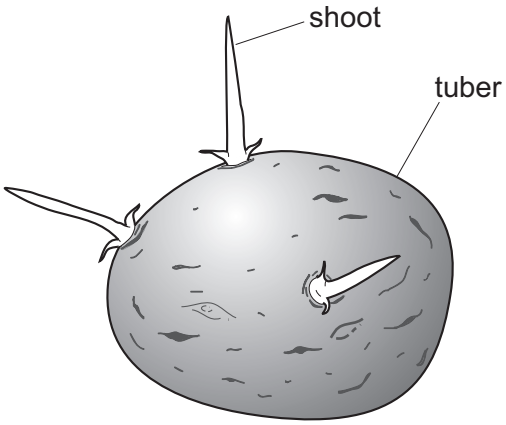
A All alcohol-related deaths increase with age.

B Men in the 35–49 year old age group are most likely to die due to alcohol-related reasons.

C Men in the 65+ age group are least likely to die due to alcohol-related reasons.

D Women are more likely to die due to alcohol-related reasons than men.

28 The diagram shows a potato tuber that developed from the stem of a parent potato plant. Three shoots are starting to grow from the tuber.



How do the genotypes of the shoots compare with the genotypes of the tuber and of the parent?

	genotype of tuber	genotype of parent
A	is different to the shoots	is different to the shoots
B	is different to the shoots	is identical to the shoots
C	is identical to the shoots	is different to the shoots
D	is identical to the shoots	is identical to the shoots

29 The list shows various terms used in sexual reproduction in organisms.

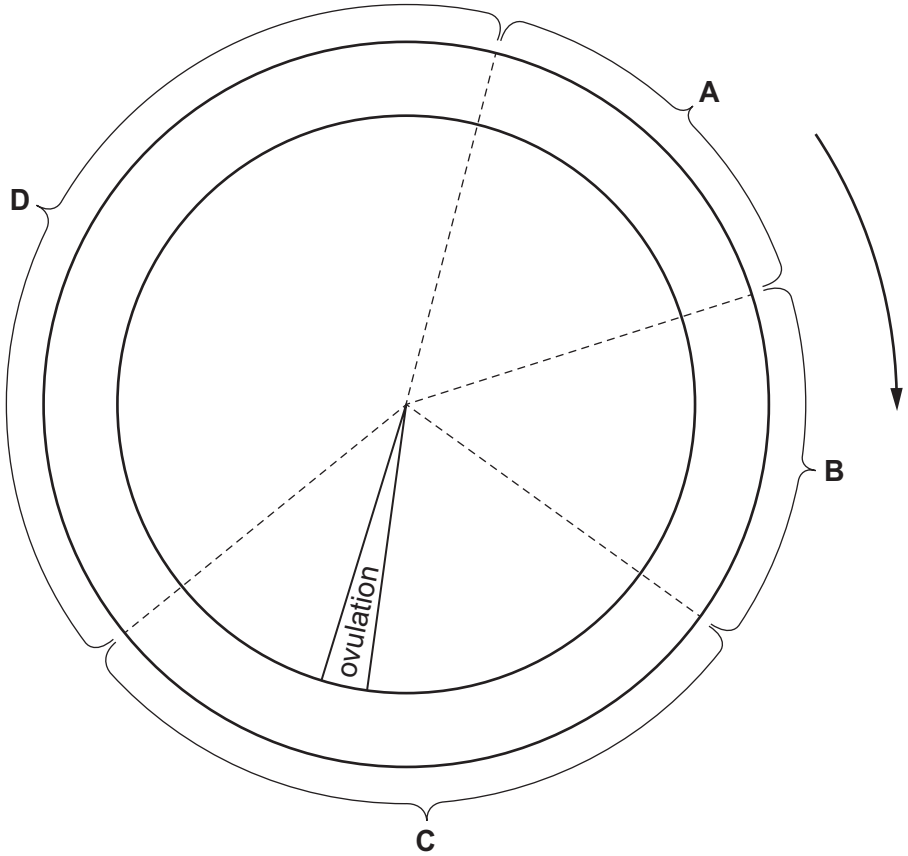
1 male gamete
2 female gamete
3 ovule
4 ovary
5 filament
6 fertilisation
7 haploid

Which terms are only used in sexual reproduction in plants?

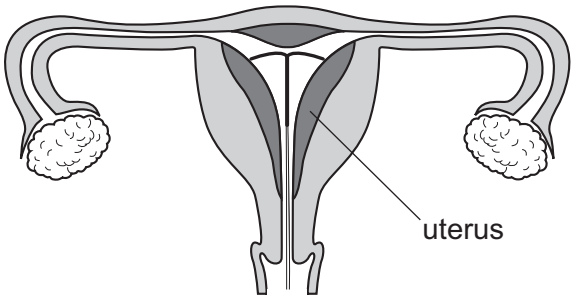
A 1 and 7 **B** 2 and 4 **C** 2 and 6 **D** 3 and 5

30 The diagram shows stages of a menstrual cycle.

During which stage does menstruation occur?



31 The diagram shows part of the female reproductive system with a birth control device in place.



Which birth control device is being used?

A chemical implant

B diaphragm

C femidom

D IUD

32 Which chromosomes can be found in a single sperm?

A X and X **B** X and Y **C** X or X **D** X or Y

33 Which term is used for an organism that has two different alleles of a particular gene?

A dominant

B heterozygous

C homozygous

D recessive

34 What is an adaptive feature of an organism?

A any feature that is changed by the environment

B any feature that helps an organism to survive and reproduce

C any feature that shows continuous variation

D any inherited feature than an organism has

35 What is required for natural selection to occur?

A genetic variation between individuals

B humans selecting desirable characteristics

C no competition between individuals or resources

D offspring produced by asexual reproduction

36 What is the principal source of energy for most food chains?

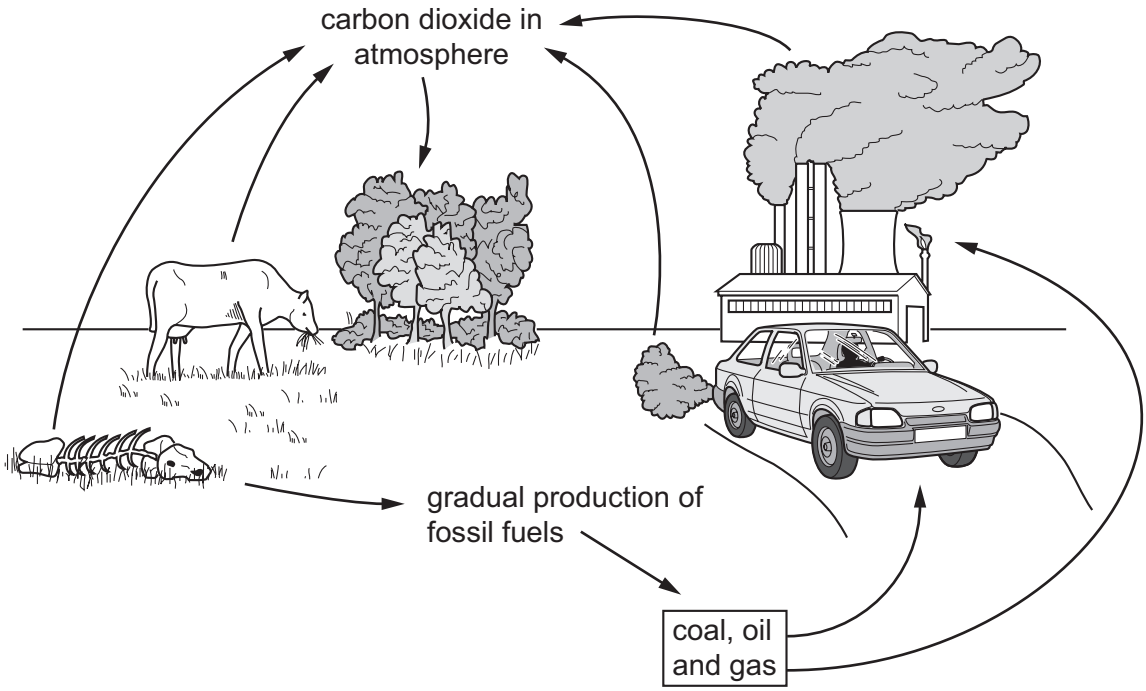
A carbon dioxide gas

B glucose

C oxygen

D sunlight

37 The diagram shows part of the carbon cycle.



Which process is missing from the diagram?

A combustion

B photosynthesis

C plant respiration

D decomposition

38 Genetic engineering has been used to produce human insulin.

Into which type of cell were the human genes for insulin inserted?

A animal

B bacterial

C fungal

D human

39 What are reasons for using chemical fertilisers in food production?

	increase pollution in rivers and lakes	increase crop yields	reduce competition between crops and weeds
A	✓	✓	✓
B	✗	✓	✗
C	✓	✗	✗
D	✗	✗	✓

40 As well as carbon dioxide, which other gas is mainly responsible for the enhanced greenhouse effect?

A methane

B oxygen

C ozone

D sulfur dioxide