Cambridge Assessment International Education

# Cambridge IGCSE™

**BIOLOGY** **0610/12**

Paper 1 Multiple Choice (Core) **May/June 2022**

**45 minutes**

You must answer on the multiple choice answer sheet.

You will need: Multiple choice answer sheet
Soft clean eraser
Soft pencil (type B or HB is recommended)

**INSTRUCTIONS**

- 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 multiple choice answer sheet.
- Follow the instructions on the multiple choice answer sheet.
- Write in soft pencil.
- Write your name, centre number and candidate number on the multiple choice answer sheet in the spaces provided unless this has been done for you.
- Do **not** use correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.

**INFORMATION**

- The total mark for this paper is 40.
- Each correct answer will score one mark.
- Any rough working should be done on this question paper.

This document has **20** pages. Any blank pages are indicated.


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**1** All living organisms release energy from nutrient molecules within their cells.

View solution

What is the name of this characteristic?

**A** growth

**B** nutrition

**C** respiration

**D** sensitivity

**2** Which levels of classification are shown in the scientific name of an organism, using the binominal system?

View solution

| | genus | kingdom | species |
|---|---|---|---|
| **A** | ✓ | ✓ | ✓ |
| **B** | ✓ | ✓ | ✗ |
| **C** | ✓ | ✗ | ✓ |
| **D** | ✗ | ✓ | ✓ |

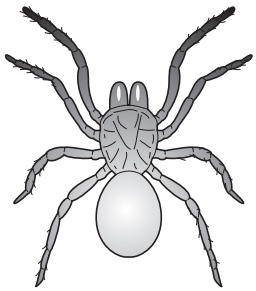
key

✓ = yes

✗ = no

**3** The diagram shows an arthropod that lives on land.

View solution



To which group of arthropods does this animal belong?

**A** arachnids

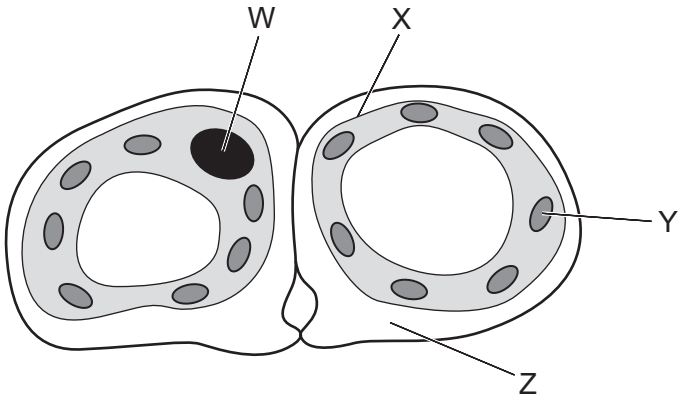
**B** crustaceans

**C** insects

**D** myriapods

**4** The diagram shows a cross-section through two guard cells of a leaf.

View solution




Which labelled structures would also be found in an animal cell?

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

**5** The table shows some structures found in the human body.

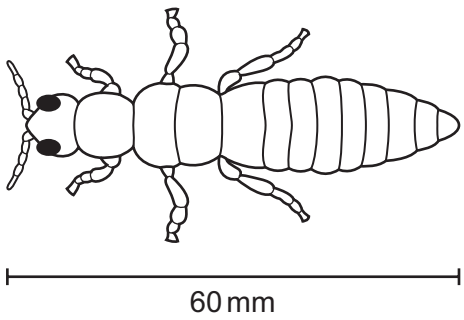
View solution

Which row shows the correct level of organisation, from the simplest structure to the most complex?

| | simple → | | | complex |
|---|---|---|---|---|
| **A** | red blood cell | heart | heart muscle | circulatory system |
| **B** | heart muscle | circulatory system | red blood cell | heart |
| **C** | red blood cell | heart muscle | heart | circulatory system |
| **D** | heart muscle | red blood cell | circulatory system | heart |

**6** The diagram shows an animal. The actual length of this animal is 0.6 mm.

View solution




What is the magnification of the diagram?

**A** ×10 **B** ×100 **C** ×1000 **D** ×10 000

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**7** By which process does oxygen move from a region of higher concentration in the alveoli to a region of lower concentration in the blood?

View solution

**A** osmosis

**B** breathing

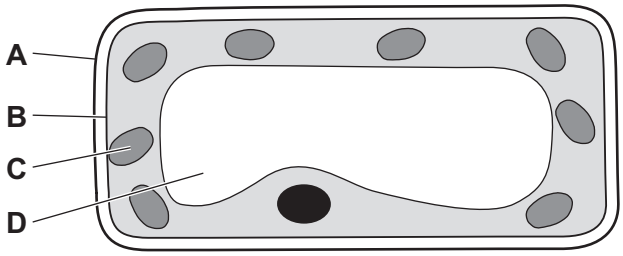
**C** diffusion

**D** active transport

**8** The diagram shows a section through a mesophyll cell of a leaf.

View solution

Which part is partially permeable?




**9** What are the smaller basic units of starch and glycogen molecules?

View solution

| | starch | glycogen |
|---|---|---|
| **A** | amino acids | fatty acids and glycerol |
| **B** | amino acids | glucose |
| **C** | glucose | fatty acids and glycerol |
| **D** | glucose | glucose |

**10** Which type of molecule are enzymes made of?

View solution

**A** carbohydrates

**B** fats

**C** proteins

**D** vitamins

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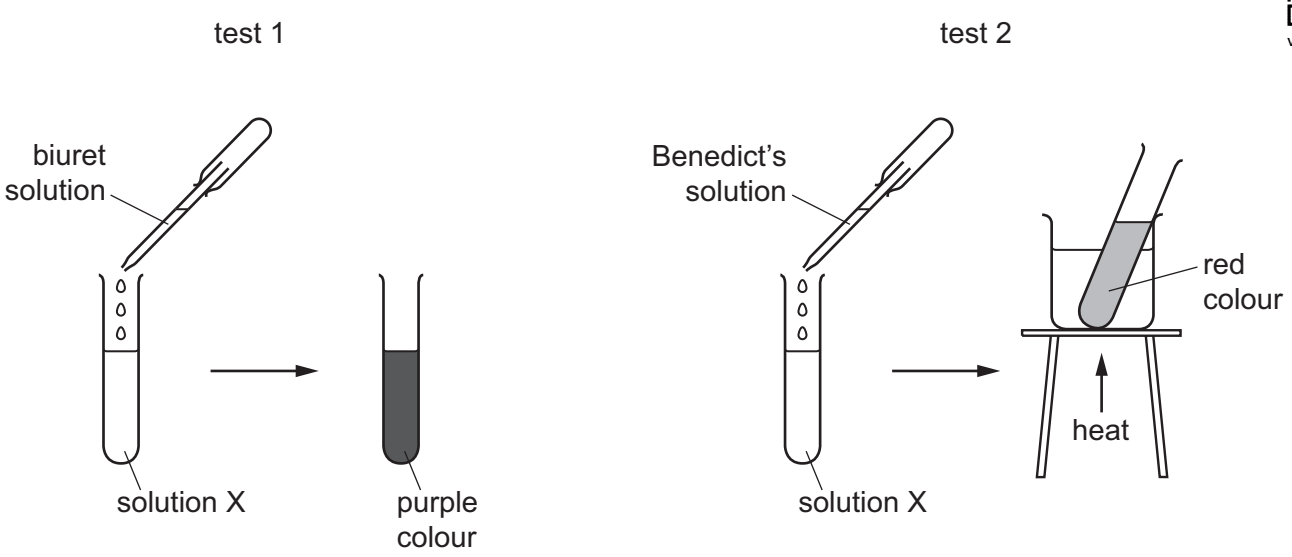
**11** The diagram shows two food tests being carried out on solution X.

View solution




Which nutrients are present in solution X?

**A** protein and starch

**B** protein and sugar

**C** starch and fat

**D** starch and sugar

**12** Which chemical is a product of photosynthesis that moves out of a green leaf through its stomata?

View solution

**A** carbon dioxide

**B** glucose

**C** oxygen

**D** water

**13** In a leaf, water moves from the surface of a mesophyll cell and then out of the leaf into the atmosphere.

View solution

What is the correct order of the processes involved?

**A** active transport → osmosis

**B** diffusion → evaporation

**C** evaporation → diffusion

**D** osmosis → active transport

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**14** The table shows some different components in a balanced diet.

View solution

Which row correctly matches the components to the reasons why they are needed?

| | vitamin D | water | fats |
|---|---|---|---|
| **A** | insulation | bone growth | to make haemoglobin |
| **B** | bone growth | transport | insulation |
| **C** | transport | to make haemoglobin | bone growth |
| **D** | to make haemoglobin | insulation | transport |

**15** Which process involves the removal of material from the rectum?

View solution

**A** egestion

**B** ingestion

**C** chemical digestion

**D** mechanical digestion

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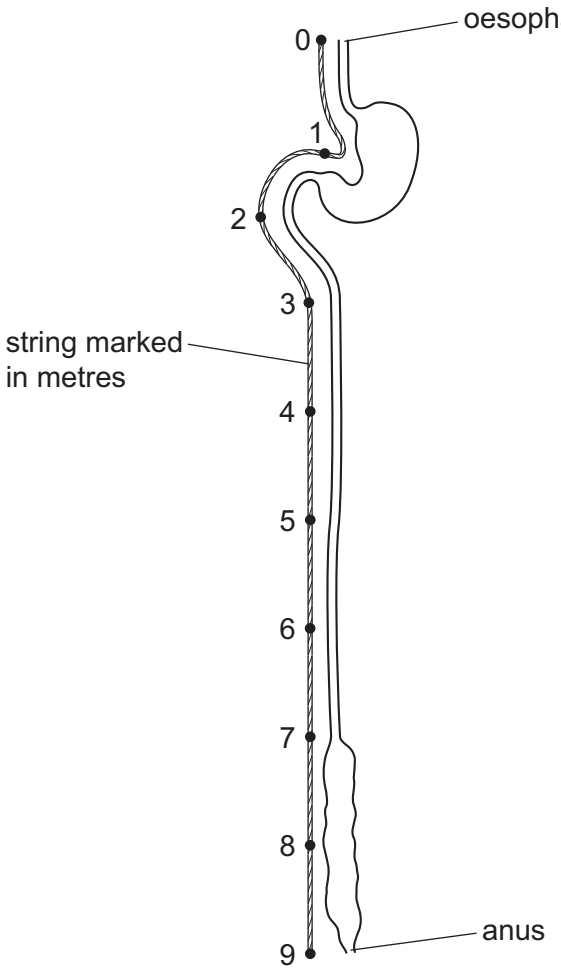
**16** The diagram shows the human alimentary canal, with a string marked in metres beside it.

View solution




How long is the small intestine?

**A** 2 m **B** 6 m **C** 8 m **D** 9 m

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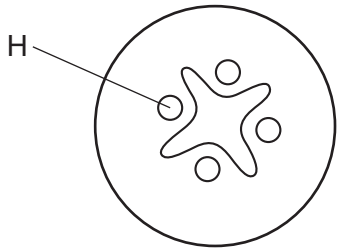
**17** The diagram shows a cross-section of part of a plant.

View solution

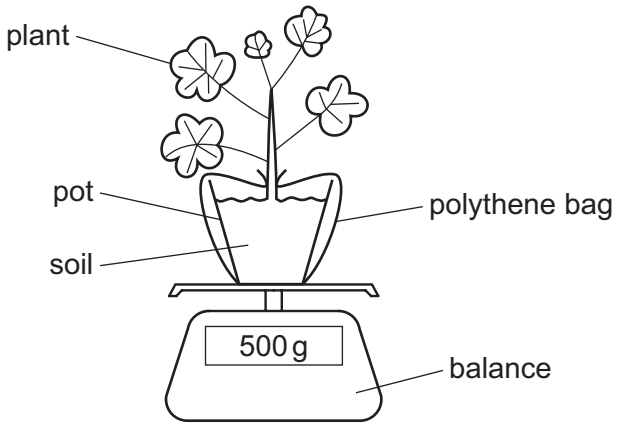



Which part of the plant is shown and what is the tissue labelled H?

| | plant part | tissue H |
|---|---|---|
| **A** | root | phloem |
| **B** | root | xylem |
| **C** | stem | phloem |
| **D** | stem | xylem |

**18** The apparatus shown can be used to investigate the effect of temperature and humidity on the rate of transpiration.

View solution




Which set of conditions would give the highest rate of transpiration and the greatest decrease in mass?

| | temperature | humidity |
|---|---|---|
| **A** | cool | high |
| **B** | cool | low |
| **C** | warm | high |
| **D** | warm | low |

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**19** Which row correctly links the blood vessels with their functions?

View solution

| | carries blood to the right atrium from the body | carries blood from the right ventricle to the lungs | carries blood from the lungs to the left atrium | carries blood from the left ventricle to the body |
|---|---|---|---|---|
| **A** | vena cava | pulmonary artery | pulmonary vein | aorta |
| **B** | aorta | pulmonary vein | pulmonary artery | vena cava |
| **C** | aorta | pulmonary artery | pulmonary vein | vena cava |
| **D** | vena cava | pulmonary vein | pulmonary artery | aorta |

**20** Which process is slower than normal in a person with very few platelets?

View solution

**A** antibody formation

**B** blood clotting

**C** oxygen transport

**D** phagocytosis

**21** Which disease is caused by a pathogen?

View solution

**A** cholera

**B** coronary heart disease

**C** lung cancer

**D** scurvy

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**22** The photographs show a positive test for the presence of carbon dioxide gas.

View solution



test-tube at the start



test-tube at the end

Which reagent is being used in the test-tube?

**A** Benedict's

**B** biuret

**C** DCPIP

**D** limewater

**23** What is the word equation for anaerobic respiration in yeast?

View solution

**A** glucose → alcohol

**B** glucose → alcohol + carbon dioxide

**C** glucose → lactic acid

**D** glucose → lactic acid + carbon dioxide

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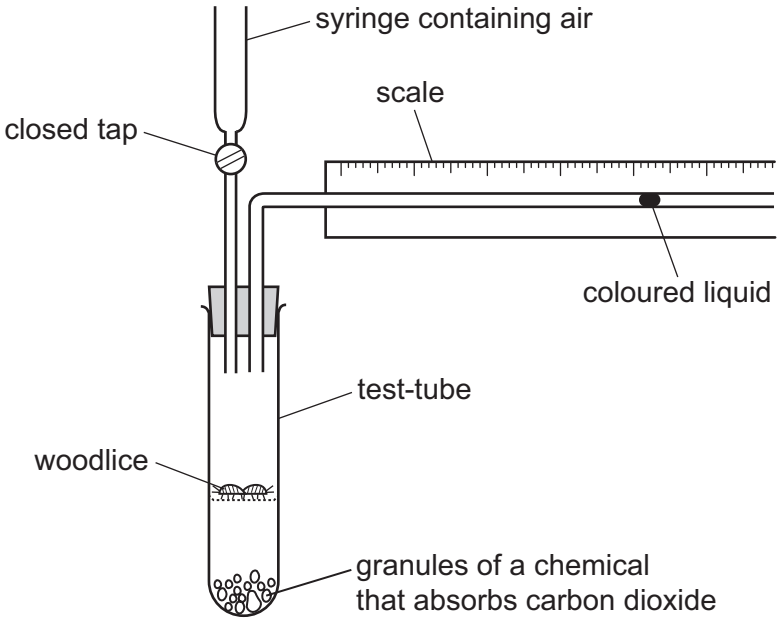
**24** A student used this apparatus to investigate the rate of aerobic respiration in woodlice.

View solution




Which statement describes and explains the movement of the coloured liquid when the woodlice are respiring?

**A** The coloured liquid moves towards the test-tube because the woodlice are using carbon dioxide.

**B** The coloured liquid moves towards the test-tube because the woodlice are using oxygen.

**C** The coloured liquid moves away from the test-tube because the woodlice are using carbon dioxide.

**D** The coloured liquid moves away from the test-tube because the woodlice are using oxygen.

**25** Which organ excretes urea?

View solution

**A** kidney

**B** liver

**C** lungs

**D** pancreas

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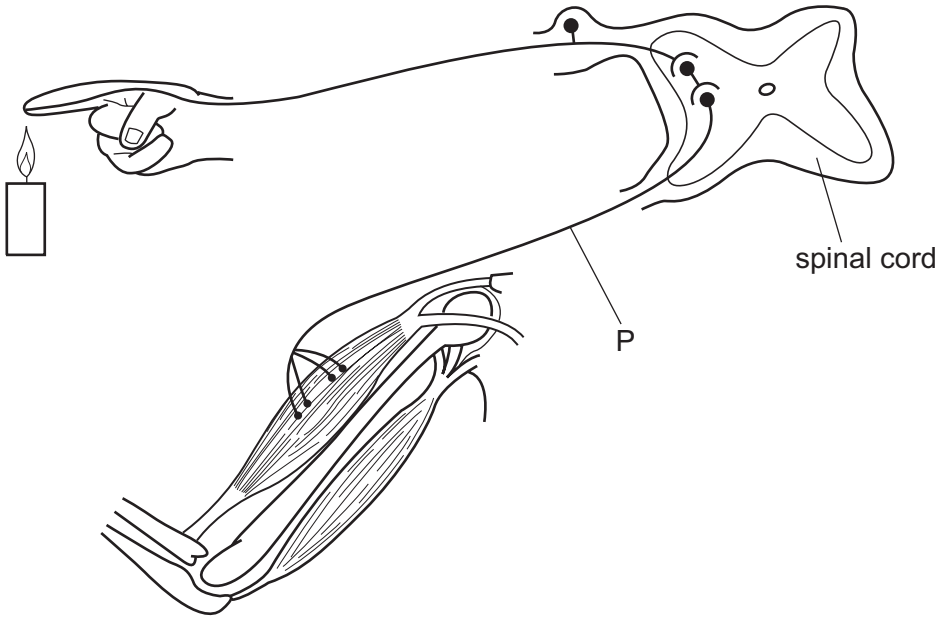
**26** The diagram shows a simple reflex arc.

View solution




What is the function of the part labelled P?

**A** passing impulses to the central nervous system

**B** passing impulses to the effector

**C** passing impulses to the receptor

**D** passing impulses to the sensory neurone

**27** Which endocrine gland produces insulin?

View solution

**A** adrenal gland

**B** ovary

**C** pancreas

**D** testes

**28** Where in the body are the blood temperature receptors?

View solution

**A** brain

**B** liver

**C** muscles

**D** skin

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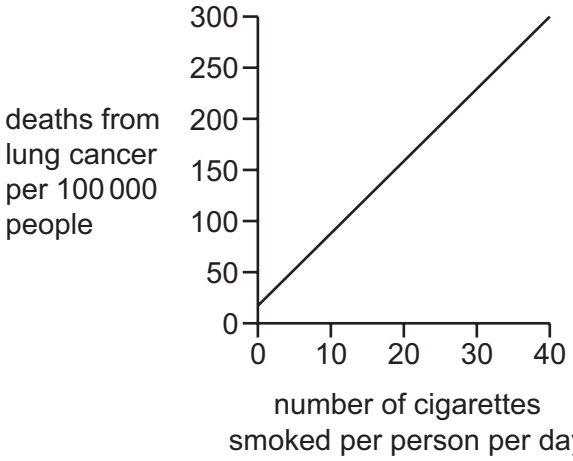
**29** The graph shows the relationship between deaths from lung cancer and the number of cigarettes smoked per day. Cigarettes contain tobacco.

View solution




Which statement is a possible conclusion for the data shown in the graph?

**A** A person will die of lung cancer only if they smoke.

**B** A person's health is only affected if they smoke more than 10 cigarettes per day.

**C** A person will have less chance of dying of lung cancer if they smoke fewer cigarettes.

**D** If a person smokes more than 40 cigarettes per day, their risk of dying from lung cancer is the same as a person who smokes 40 cigarettes per day.

**30** The statements refer to reproduction.

View solution

1 A zygote is formed.

2 Offspring are genetically identical to the parent.

3 Two gamete nuclei fuse together.

Which statements refer to sexual reproduction?

**A** 1, 2 and 3 **B** 1 and 3 only **C** 1 only **D** 2 and 3 only

**31** What is the name of the ball of cells that forms soon after fertilisation in humans?

View solution

**A** embryo

**B** ovum

**C** placenta

**D** fetus

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**32** The diagram shows the inheritance of sex in humans.

View solution

| | | male gametes | |
|---|---|---|---|
| | | X | Y |
| female gametes | X | XX | XY |
| | X | XX | XY |

A man and a woman have one female child.

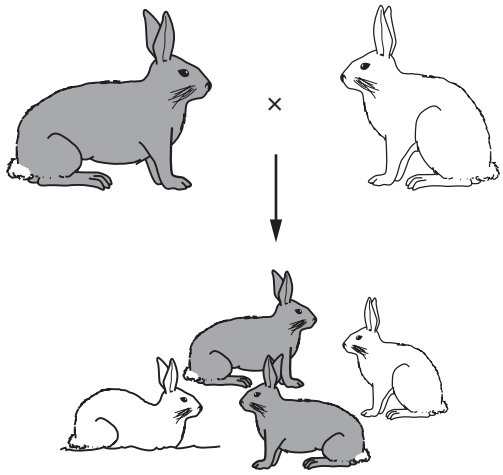
What is the chance of the couple's next child being female?

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

View solution

**33** In rabbits, the allele for dark fur, R, is dominant to the allele for white fur, r.

The diagram shows a cross between a rabbit with dark fur and a rabbit with white fur.



What are the genotypes of the parents?

**A** Rr and rr **B** RR and rr **C** RR and Rr **D** R and r

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**34** The graph shows the different heights of people in a human population.

View solution




Which row describes the variation shown by the graph?

| | type of variation | has intermediate phenotypes |
|---|---|---|
| **A** | continuous | no |
| **B** | continuous | yes |
| **C** | discontinuous | no |
| **D** | discontinuous | yes |

**35** Which statement about selective breeding is correct?

View solution

**A** It does not involve humans.

**B** It involves a struggle for survival.

**C** It always involves only one parent.

**D** It involves parents that possess desirable features.

**36** Which process uses the principal source of energy input to biological systems?

View solution

**A** ingestion

**B** decomposition

**C** photosynthesis

**D** respiration

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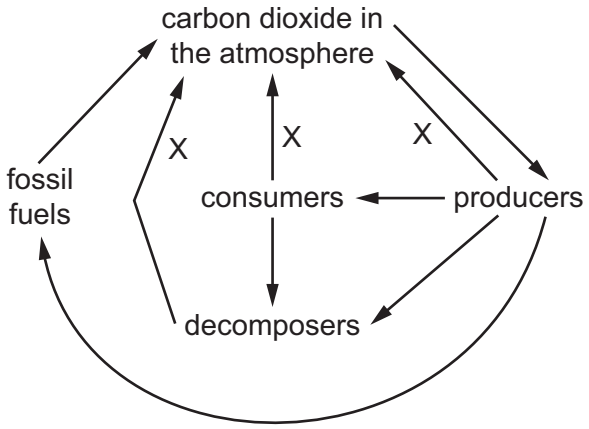
**37** The diagram shows part of the carbon cycle.

View solution




Which process is shown by the arrows labelled X?

**A** combustion

**B** fossilisation

**C** photosynthesis

**D** respiration

**38** A herd of red deer live in a forest that contains snakes and a large variety of birds.

View solution

Which group of organisms is an example of a population?

**A** all the animals in the forest

**B** all the red deer in the forest

**C** all the organisms in the forest

**D** all the plants in the forest

**39** Which process makes use of a genetically engineered organism?

View solution

**A** using bacteria to produce insulin

**B** using enzymes in biological washing powders

**C** using pectinase in fruit juice production

**D** using yeast to produce ethanol

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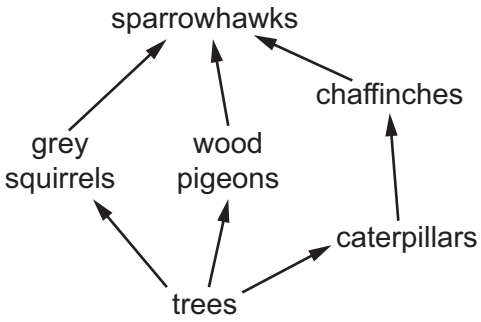
**40** The food web shows the feeding relationships in a woodland.

View solution




If all the chaffinches in the food web die, which effect would this have?

**A** The amount of damage to trees will increase.

**B** The food supply for grey squirrels will increase.

**C** The number of wood pigeons will increase.

**D** The population of caterpillars will decrease.

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