

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

BIOLOGY

0610/01

Paper 1 Multiple Choice

May/June 2005

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, 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 **16** printed pages.

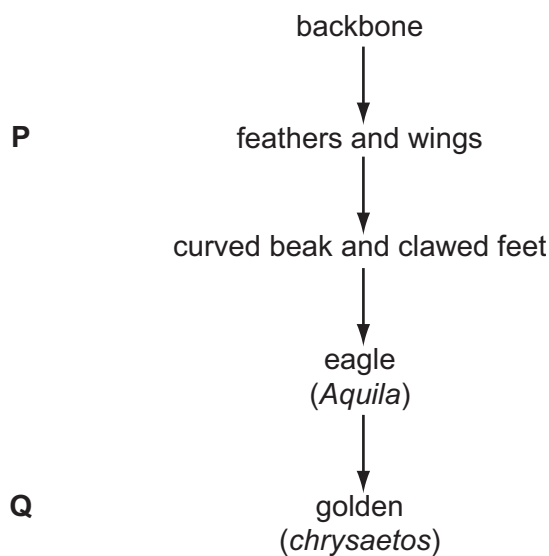


- 1 A student was walking along a road when he saw an object under a tree.

When the student touched the object it changed colour, rolled over and divided into two.

Which characteristics of living organisms has the object shown?

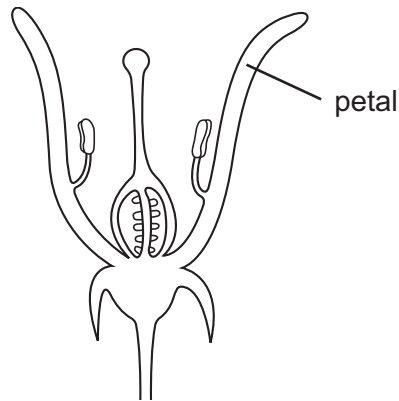
- A** excretion movement nutrition
- B** growth reproduction sensitivity
- C** movement reproduction respiration
- D** movement reproduction sensitivity
- 2 Which type of living animal has a rough, dry, scaly skin?
- A** amphibian
- B** fish
- C** mammal
- D** reptile
- 3 The diagram shows features used in classifying the golden eagle.



To which groups, used in classification, do **P** and **Q** refer?

| | P | Q |
|----------|----------|----------|
| A | class | genus |
| B | class | species |
| C | genus | class |
| D | species | genus |

- 4 The diagram shows a section through a flower.



Using the key, identify this flower.

- | | | |
|---|--------------------------------------|----------|
| 1 | sepals present | go to 2 |
| | sepals absent | go to 3 |
| 2 | stamens attached to petals | A |
| | stamens not attached to petals | B |
| 3 | stigma above anthers | C |
| | stigma below anthers | D |

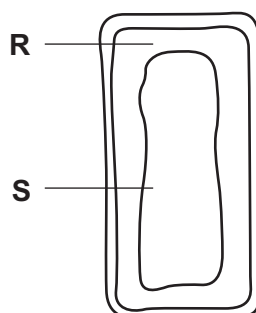
- 5 Which does **not** contain cytoplasm?

- A** liver cell
- B** palisade tissue
- C** red blood cell
- D** xylem vessel

- 6 Which parts are found in both plant and animal cells?

- A** cell membrane, large vacuole
- B** cell membrane, cytoplasm
- C** cell wall, large vacuole
- D** cell wall, cytoplasm

7 The diagram shows parts of a mesophyll cell.



What are found in the parts labelled **R** and **S**?

| | R | S |
|----------|--------------------------|--------------------------|
| A | chloroplasts | nucleus |
| B | chloroplasts and nucleus | watery solution |
| C | nucleus | chloroplasts |
| D | watery solution | chloroplasts and nucleus |

8 What is the heart?

- A** a cell
- B** an organ
- C** an organ system
- D** a tissue

9 Which function is carried out by the ciliated cells in the respiratory tract?

- A** filtering dirt from passing air
- B** making mucus
- C** moving carbon dioxide out of the lungs
- D** moving mucus to the throat

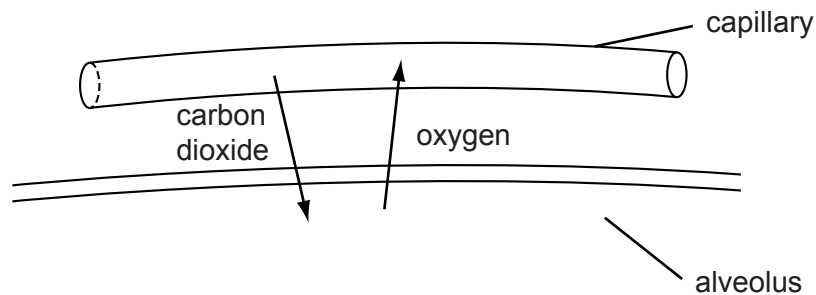
- 10** Osmosis is the passage of ...**1**... molecules from a region of their higher concentration to a region of their lower concentration through a ...**2**... permeable membrane.

Which words fill gaps **1** and **2**?

| | 1 | 2 |
|----------|----------|------------|
| A | sugar | completely |
| B | sugar | partially |
| C | water | completely |
| D | water | partially |

- 11** The diagram shows part of an alveolus and part of a nearby capillary.

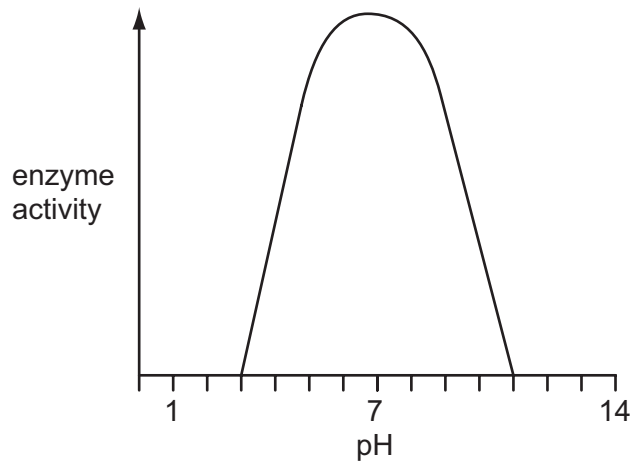
The arrows show the direction of movement of carbon dioxide and oxygen.



By which process do these gases move?

- A** conduction
 - B** diffusion
 - C** osmosis
 - D** transpiration
- 12** What is the optimum pH for a stomach protease?
- A** pH2 **B** pH7 **C** pH9 **D** pH12

13 The graph shows the activity of an enzyme.



What does the graph show about the activity of this enzyme?

- A** It is destroyed by high temperatures.
- B** It is most active in acid conditions.
- C** It is most active in neutral conditions.
- D** It is unaffected by pH.

14 Which function is performed by the ileum?

- A** absorption
- B** assimilation
- C** egestion
- D** ingestion

15 Which substances are stored in the body of a healthy person?

| | substance | | |
|----------|--------------|-----|---------|
| | carbohydrate | fat | protein |
| A | ✓ | ✓ | x |
| B | ✓ | x | ✓ |
| C | x | ✓ | x |
| D | x | x | ✓ |

Key

✓ = yes

x = no

16 Which of these is digested by protease?

A ■

B ●

C ■—■—■—■

D ●—●—●—●

key

■ amino acid

● glucose

— chemical bond

17 What is translocated from the leaves to the growing parts of the plant?

A amino acids

B carbon dioxide

C starch

D water vapour

18 *Double circulation* of the blood means that for every complete circuit of the body

A atria and ventricles contract alternately.

B blood flows through the arteries and veins.

C blood flows through atria and ventricles.

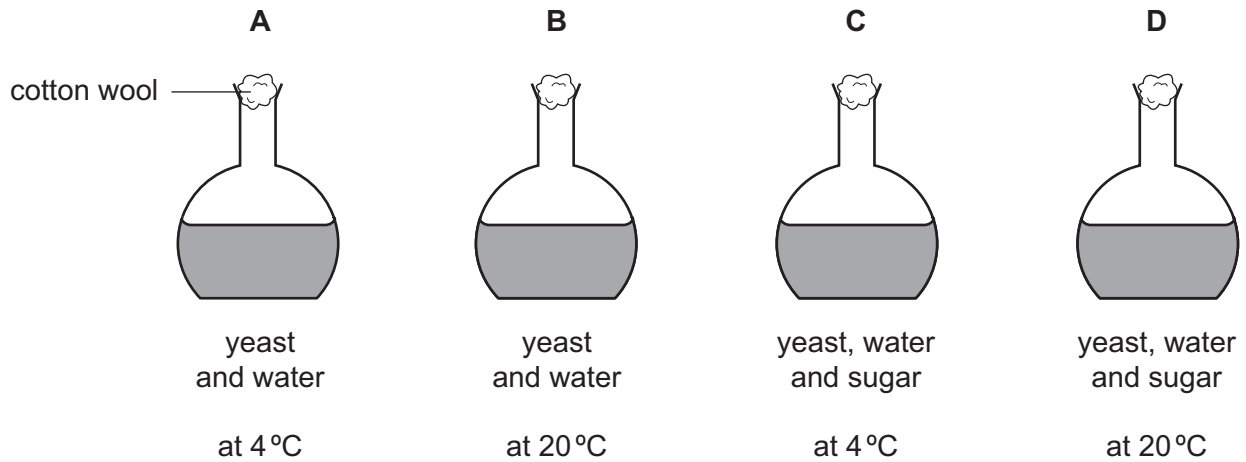
D blood flows twice through the heart.

19 Which matches the component of blood to its function?

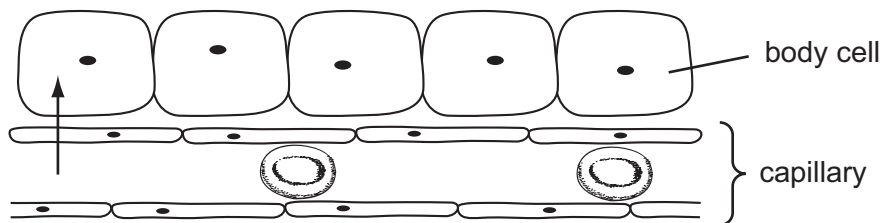
| | component | function |
|---|-------------------|------------------|
| A | plasma | carries glycogen |
| B | platelets | carry hormones |
| C | red blood cells | carry oxygen |
| D | white blood cells | carry nutrients |

20 Four flasks are sterilised and are set up as shown.

Which flask will contain most alcohol after several hours?



21 The diagram shows some body cells and a nearby capillary.



Which substances must pass in the direction of the arrow for the cells to respire aerobically?

- A carbon dioxide and water
- B glucose and oxygen
- C salts and glucose
- D water and salts

22 Which features of an animal's skin make it suitable as a gaseous exchange surface?

| | features of skin | |
|---|------------------------------------|----------------------------------|
| | large area compared with body size | well supplied with blood vessels |
| A | ✓ | ✓ |
| B | ✓ | x |
| C | x | ✓ |
| D | x | x |

key

✓ = suitable

x = not suitable

23 In which organ is urea formed and through which tube does it leave the body?

| | organ | tube |
|----------|--------|---------|
| A | kidney | ureter |
| B | kidney | urethra |
| C | liver | ureter |
| D | liver | urethra |

24 Which substances are usually found in the urine of a healthy person?

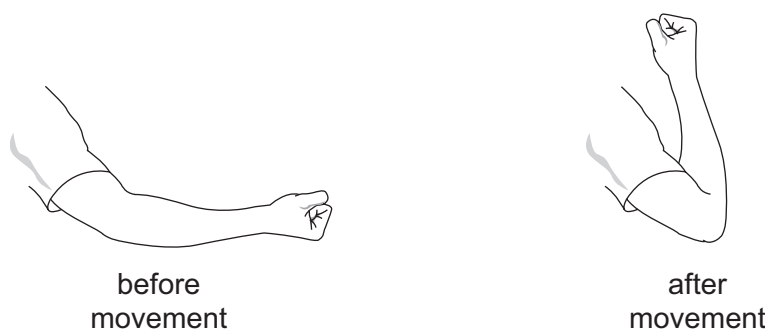
- A** glucose and proteins
- B** salts and amino acids
- C** salts and water
- D** water and proteins

25 During a long-distance race, the body temperature of an athlete begins to rise.

Which changes occur to help return the body temperature to normal?

| | sweating | blood vessels in the skin |
|----------|-----------|------------------------------|
| A | decreases | constrict |
| B | decreases | dilate |
| C | increases | constrict |
| D | increases | dilate |

26 The diagrams show part of the arm being raised.

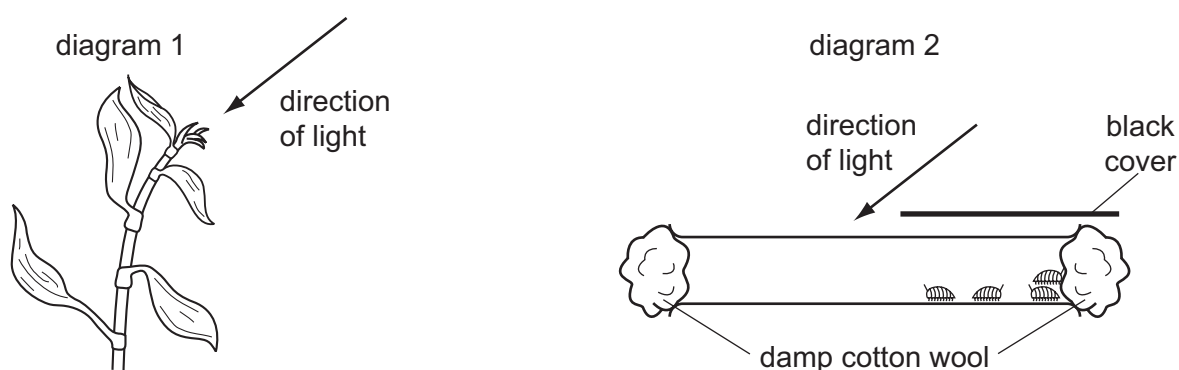


Which is the order of events that causes the movement shown in the diagrams?

- A impulse in motor neurone → biceps contracts → muscle pulls bone
- B impulse in motor neurone → triceps relaxes → muscle pushes bone
- C impulse in sensory neurone → triceps contracts → muscle pushes bone
- D impulse in sensory neurone → biceps relaxes → muscle pulls bone

27 Movement towards a stimulus is described as positive. Movement away from a stimulus is described as negative.

Diagram 1 shows a plant shoot. Diagram 2 shows small invertebrates in a glass tube.



Which responses are being shown by these organisms?

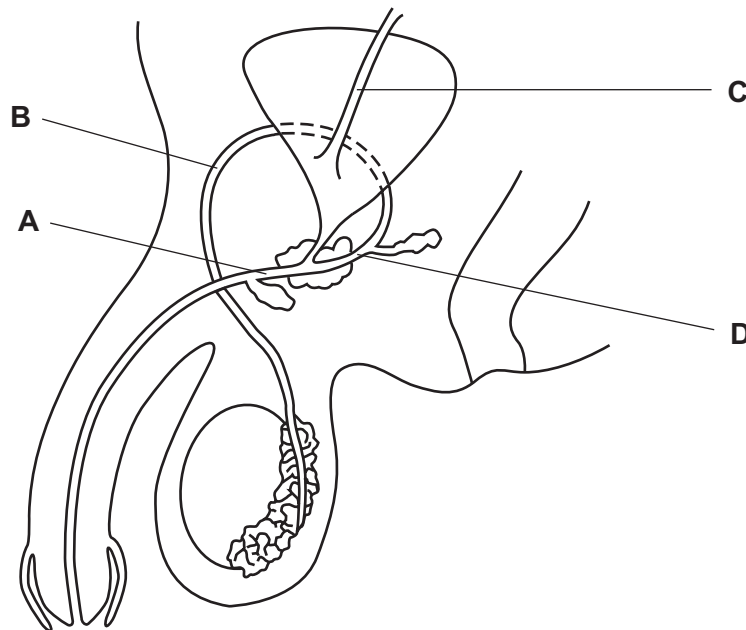
| | plant shoot | invertebrates |
|---|-----------------------|-----------------------|
| A | negative phototaxis | positive phototropism |
| B | negative phototropism | positive phototaxis |
| C | positive phototaxis | negative phototropism |
| D | positive phototropism | negative phototaxis |

28 Which structure contains the male gamete as it passes from one flower to another?

- A anther
- B ovule
- C pollen
- D seed

29 The diagram shows reproductive organs of a human male.

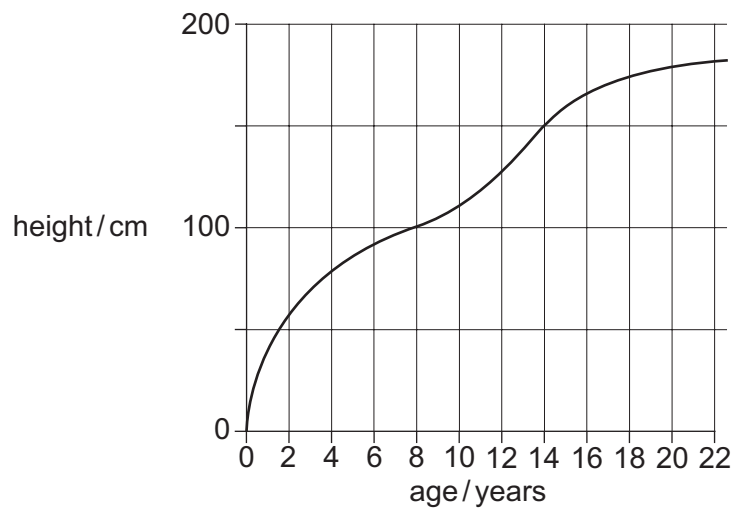
Which tube carries both sperms and urine?



30 What must be present before seeds will germinate?

- A carbon dioxide
- B light
- C mineral salts
- D water

31 The graph shows how human height changes with age.



In which age range is growth fastest?

- A 0–2 years
- B 8–10 years
- C 12–14 years
- D 20–22 years

32 Which is an example of discontinuous variation in humans?

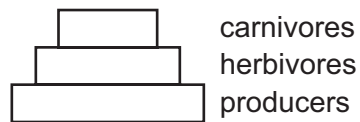
- A blood group
- B body mass
- C height
- D width of hand

33 A family has three daughters. The mother is pregnant for the fourth time.

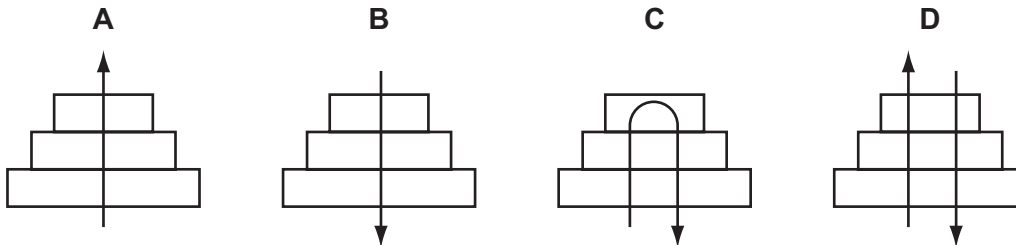
What is the chance of the fourth child being a son?

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

- 34 The diagram represents a pyramid of biomass within an ecosystem.

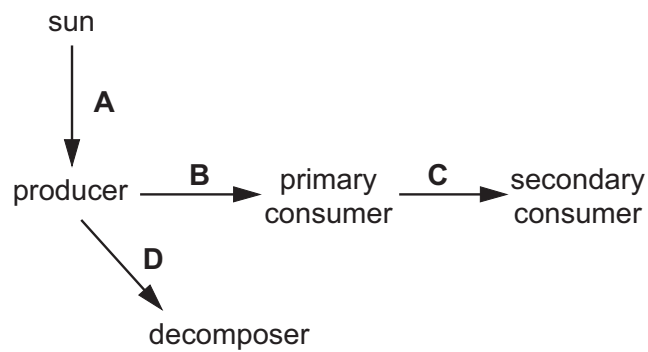


What shows the direction of energy flow through the pyramid?

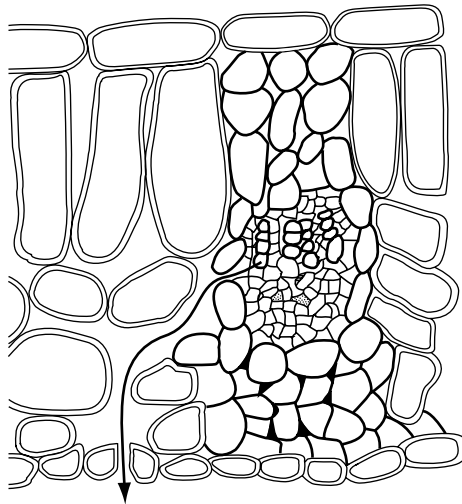


- 35 The diagram shows a food chain.

Where does energy enter the food chain?



36 The diagram shows part of a section through a leaf.



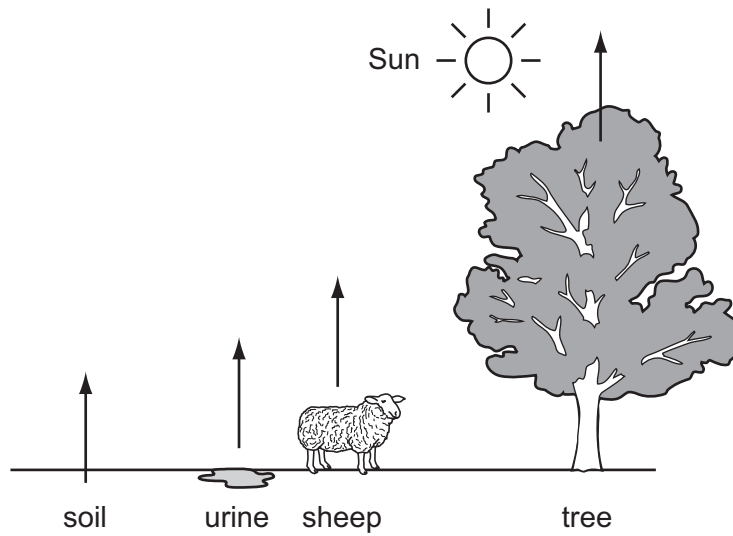
The arrow represents part of the

- A carbon cycle only.
- B flow of energy.
- C water and carbon cycles.
- D water cycle only.

37 Which process does **not** return carbon dioxide to the atmosphere?

- A burning coal
- B decay of leaves in the soil
- C photosynthesis in plants
- D respiration in animals

38 The diagram shows the release of a substance into the atmosphere from different sources.



What is this substance?

- A carbon dioxide
- B oxygen
- C urea
- D water vapour

39 The table shows the population of a type of small mammal on an island, over five years.

| year | population size |
|------|-----------------|
| 1 | 5200 |
| 2 | 5800 |
| 3 | 6400 |
| 4 | 6900 |
| 5 | 230 |

What could have caused the change in population size between years 4 and 5?

- A immunity to disease
- B less pollution
- C more predators
- D plenty of food

- 40** What changes in the concentration of oxygen, number of bacteria and number of fish are caused by sewage entering a river?

| | concentration of oxygen | number of bacteria | number of fish |
|----------|-------------------------|--------------------|----------------|
| A | decreases | decreases | increases |
| B | decreases | increases | decreases |
| C | increases | decreases | decreases |
| D | increases | increases | increases |

Copyright Acknowledgements:

Question 29 © 'Adapted from 'GCSE Biology' (John Murray)

Every reasonable effort has been made to trace all copyright holders where the publishers (i.e. UCLES) are aware that third-party material has been reproduced. The publishers would be pleased to hear from anyone whose rights they have unwittingly infringed.

University of Cambridge International Examinations is part of the University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.