Topical Past Paper Questions Workbook

# IGCSE Biology (0610) Paper 2 [Extended]

**Multiple Choice Questions**

**Exam Series: February/March 2017 - May/June 2023**

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# Introduction

Each Topical Past Paper Questions Workbook contains a comprehensive collection of hundreds of questions and corresponding answer schemes, presented in worksheet format. The questions are carefully arranged according to their respective chapters and topics, which align with the latest IGCSE or AS/A Level subject content. Here are the key features of these resources:

1. The workbook covers a wide range of topics, which are organized according to the latest syllabus content for Cambridge IGCSE or AS/A Level exams.
2. Each topic includes numerous questions, allowing students to practice and reinforce their understanding of key concepts and skills.
3. The questions are accompanied by detailed answer schemes, which provide clear explanations and guidance for students to improve their performance.
4. The workbook's format is user-friendly, with worksheets that are easy to read and navigate.
5. This workbook is an ideal resource for students who want to familiarize themselves with the types of questions that may appear in their exams and to develop their problem-solving and analytical skills.

Overall, Topical Past Paper Questions Workbooks are a valuable tool for students preparing for IGCSE or AS/A Level exams, providing them with the opportunity to practice and refine their knowledge and skills in a structured and comprehensive manner. To provide a clearer description of this book's specifications, here are some key details:

- Title: Cambridge IGCSE Biology (0610) Paper 2 Topical Past Paper Questions
- Subtitle: Exam Practice Worksheets With Answer Scheme
- Examination board: Cambridge Assessment International Education (CAIE)
- Subject code: 0610
- Years covered: Feb/Mar 2017 – May/Jun 2023
- Paper: 2 [Extended] (Multiple Choice Questions)
- Number of pages: 591
- Number of questions: 1482

# Contents

# Chapter 1

# Characteristics and classification of living organisms

## 1.1 Characteristics of living organisms

1. 0610_s23_qp_21 Q: 1

What are characteristics of all organisms?

**A** egestion and excretion

**B** egestion and nutrition

**C** excretion and nutrition

**D** excretion and photosynthesis

---

2. 0610_s23_qp_22 Q: 1

Which process occurs both in plants and in animals?

**A** excretion

**B** phagocytosis

**C** photosynthesis

**D** transpiration

---

3. 0610_s23_qp_23 Q: 1

What are two characteristics of all living organisms?

**A** breathing and reproduction

**B** photosynthesis and excretion

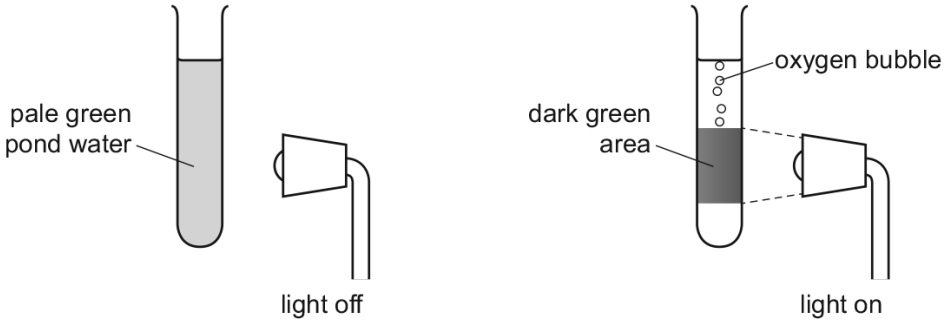
**C** reproduction and respiration

**D** respiration and photosynthesis

---

4. 0610_m22_qp_22 Q: 1

The diagrams show a test-tube containing pond water. The green colour is caused by microorganisms that have chloroplasts.




Which characteristics of living organisms are shown?

**A** excretion, growth and movement

**B** movement, nutrition and sensitivity

**C** nutrition, reproduction and respiration

**D** reproduction, sensitivity and growth

---

5. 0610_s22_qp_21 Q: 1

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

What is the name of this characteristic?

**A** growth

**B** nutrition

**C** respiration

**D** sensitivity

---

6. 0610_w22_qp_21 Q: 1

Which process provides an organism with the raw materials needed for tissue repair?

**A** excretion

**B** growth

**C** nutrition

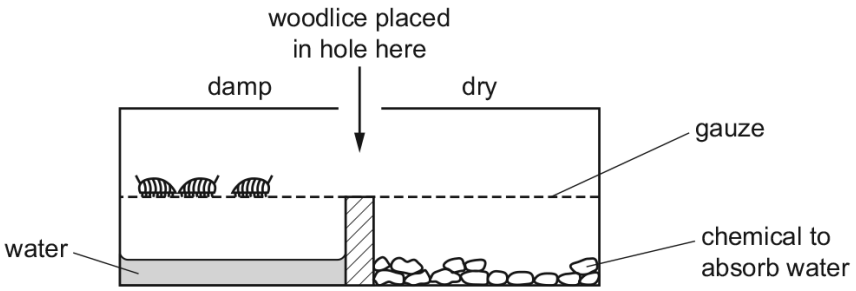
**D** respiration

---

7. 0610_m21_qp_22 Q: 1

Woodlice are small organisms that live in damp places.

In an experiment, three live woodlice are put into a glass container. The diagram shows what happens after 30 minutes.




Which characteristic of living organisms is shown by this experiment?

**A** growth

**B** nutrition

**C** respiration

**D** sensitivity

---

8. 0610_s21_qp_21 Q: 1

What is a characteristic of all living organisms?

**A** breathing

**B** circulation

**C** egestion

**D** sensitivity

---

9. 0610_w21_qp_21 Q: 1

Which characteristics of all living organisms are needed to release energy for growth?

**A** breathing and respiration

**B** excretion and nutrition

**C** excretion and respiration

**D** nutrition and respiration

---

10. 0610_w21_qp_22 Q: 1

All living things can remove toxic materials and other substances that are in excess of requirements.

What is this process called?

**A** egestion

**B** excretion

**C** nutrition

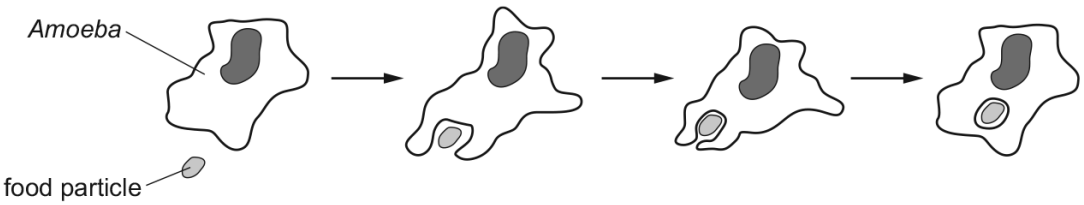
**D** respiration

---

11. 0610_w21_qp_23 Q: 1

An *Amoeba* is a single-celled organism.

The diagram shows an *Amoeba* engulfing a food particle.




Which characteristics of living organisms are shown?

**A** excretion, movement and nutrition

**B** excretion, nutrition and sensitivity

**C** movement, nutrition and sensitivity

**D** movement, reproduction and sensitivity

---

12. 0610_m20_qp_22 Q: 1

Which characteristic do **all** living organisms show?

**A** breathing

**B** excretion

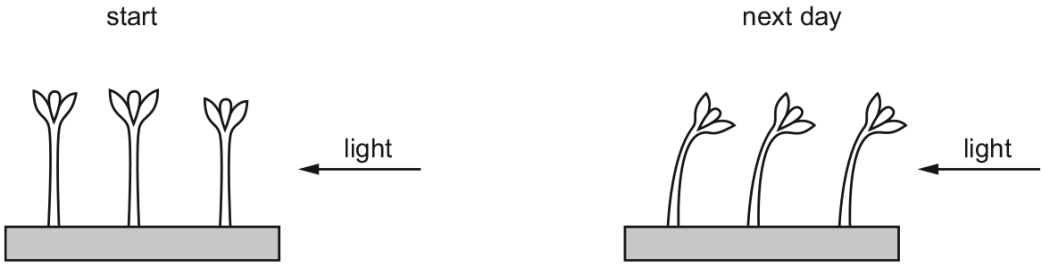
**C** photosynthesis

**D** tropism

---

13. 0610_s20_qp_21 Q: 1

The diagram shows what happened in an experiment with plant seedlings.




Which characteristic of living things made the seedlings grow towards the light?

**A** excretion

**B** nutrition

**C** respiration

**D** sensitivity

---

14. 0610_w20_qp_21 Q: 1

Hedgehogs are mammals. Touching a hedgehog causes it to roll into a ball to protect itself.

Which characteristics is it displaying?

**A** excretion and movement

**B** growth and sensitivity

**C** movement and growth

**D** movement and sensitivity

---

15. 0610_w20_qp_22 Q: 1

Which process is carried out by all organisms?

**A** growth

**B** photosynthesis

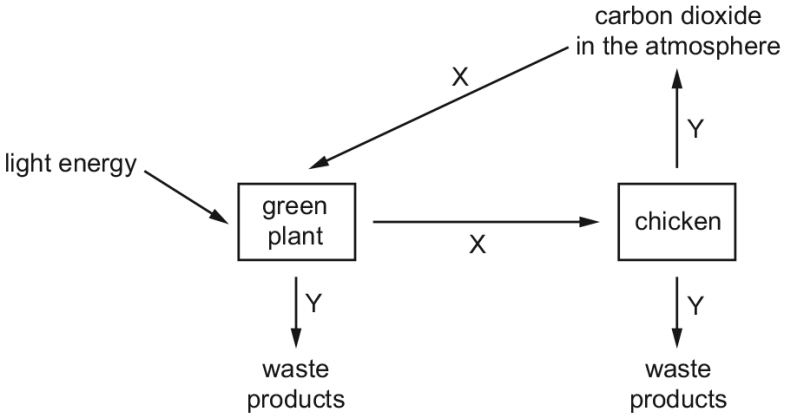
**C** sexual reproduction

**D** transpiration

---

16. 0610_w20_qp_23 Q: 1

The diagram shows some of the processes carried out by living organisms.




Which two characteristics of living organisms are represented by arrows X and Y?

**A** excretion and sensitivity

**B** nutrition and excretion

**C** respiration and growth

**D** sensitivity and reproduction

---

17. 0610_m19_qp_22 Q: 1

A living organism, X, can make its own food, get rid of toxic materials and detect and respond to stimuli.

What **other** four processes must organism X carry out to stay alive?

**A** excretion, growth, movement, sensitivity

**B** excretion, growth, nutrition, respiration

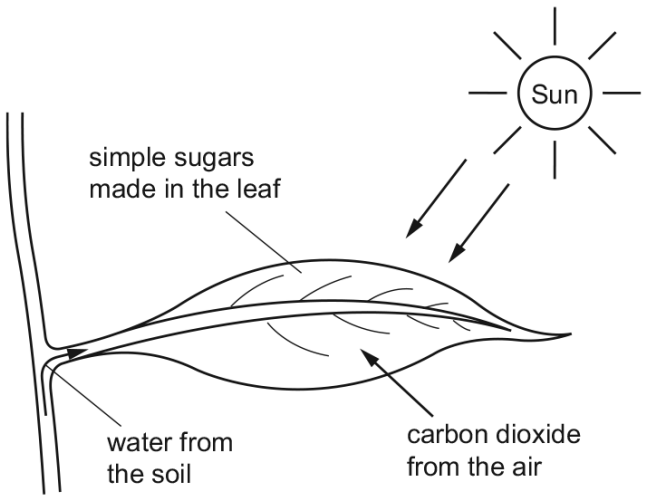
**C** growth, movement, reproduction, respiration

**D** movement, reproduction, respiration, sensitivity

---

18. 0610_s19_qp_21 Q: 1

The diagram shows a leaf on a plant.




Which characteristic of life is represented by this diagram?

**A** excretion

**B** nutrition

**C** respiration

**D** sensitivity

---

19. 0610_s19_qp_22 Q: 1

Carbon dioxide diffuses into a leaf.

Which characteristic of living things requires this?

**A** excretion

**B** movement

**C** nutrition

**D** respiration

---

20. 0610_s19_qp_23 Q: 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

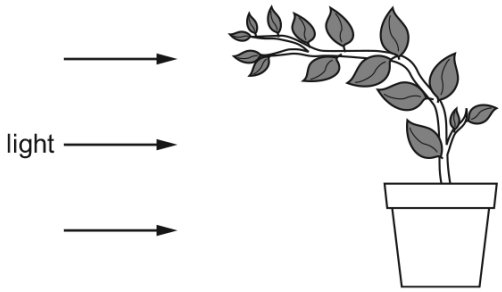
**C** movement, reproduction and sensitivity

**D** movement, reproduction and respiration

---

21. 0610_w19_qp_21 Q: 1

The diagram shows a plant.




Which characteristic of living organisms is shown by the plant in the diagram?

**A** excretion

**B** reproduction

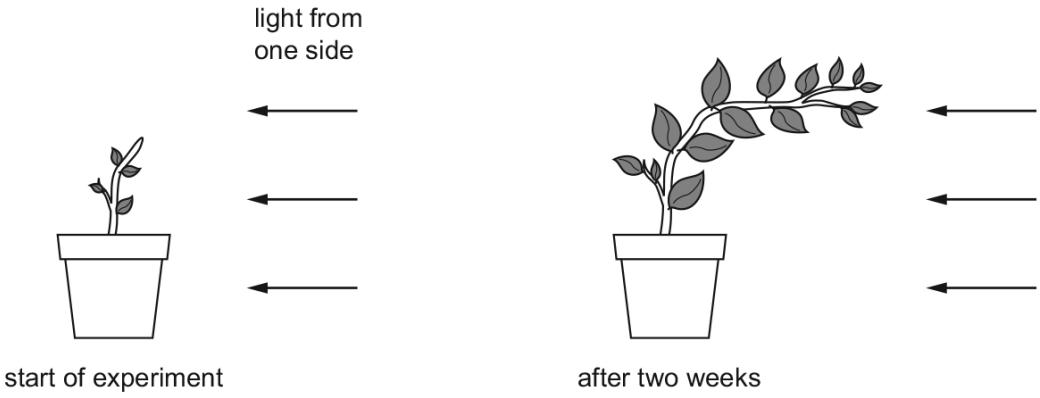
**C** respiration

**D** sensitivity

---

22. 0610_w19_qp_23 Q: 1

The diagrams show a plant at the start of an experiment, and the same plant two weeks later.




Which characteristics of living organisms are demonstrated by this experiment?

**A** excretion, growth, movement

**B** excretion, movement, reproduction

**C** growth, movement, sensitivity

**D** sensitivity, growth, respiration

---

23. 0610_m18_qp_22 Q: 1

Biology is the study of living things.

Which characteristic applies to all forms of life?

**A** able to move from place to place

**B** able to reproduce

**C** carry out photosynthesis

**D** possess a nervous system

---

24. 0610_s18_qp_21 Q: 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

---

25. 0610_w18_qp_21 Q: 1

The sundew is a carnivorous plant that can trap small insects with sticky hairs and then digest them. When an insect gets stuck, other nearby sticky hairs bend over to trap the insect.

Which characteristics of living organisms are demonstrated when the sundew traps insects?

**A** growth and excretion

**B** growth and sensitivity

**C** movement and excretion

**D** movement and sensitivity

---

26. 0610_w18_qp_22 Q: 1

A person drinks a glass of iced water and the volume of sweat they secrete decreases.

This is an example of which characteristic of living organisms?

**A** growth

**B** movement

**C** respiration

**D** sensitivity

---

27. 0610_w18_qp_23 Q: 1

The Venus flytrap is a plant that feeds on insects. When a fly lands on the leaf, the leaf folds very quickly and traps the fly. The leaves produce enzymes which digest the fly.

Which characteristics of living organisms are involved?

**A** excretion, growth, nutrition

**B** movement, excretion, nutrition

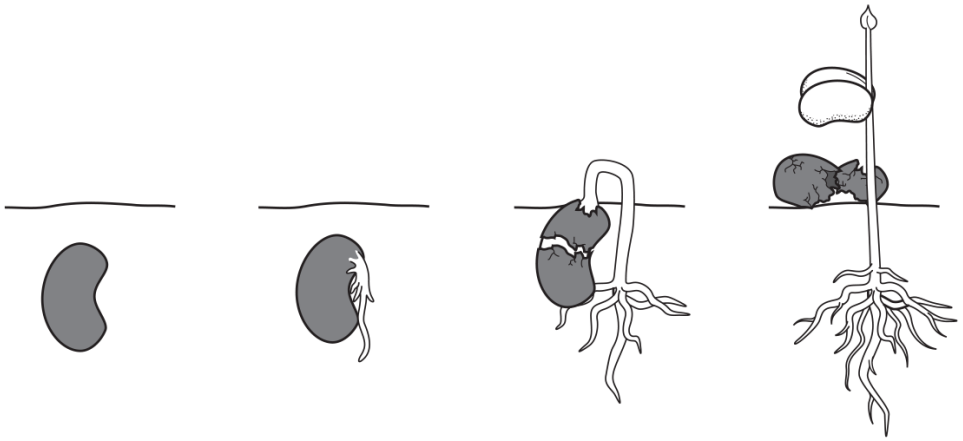
**C** movement, sensitivity, growth

**D** movement, sensitivity, nutrition

---

28. 0610_m17_qp_22 Q: 2

The diagram shows how a seed changes after it is planted in soil and watered.



Which characteristics of living things are demonstrated by this sequence?

**A** excretion and growth

**B** growth and sensitivity

**C** nutrition and reproduction

**D** nutrition and sensitivity

---

29. 0610_w17_qp_21 Q: 1

Which term is defined as all the chemical reactions that occur in cells?

**A** photosynthesis

**B** protein synthesis

**C** respiration

**D** metabolism

---

30. 0610_w17_qp_23 Q: 1

The plant *Mimosa pudica* has leaves that fold in when touched.

This demonstrates movement and which other characteristic?

**A** excretion

**B** growth

**C** nutrition

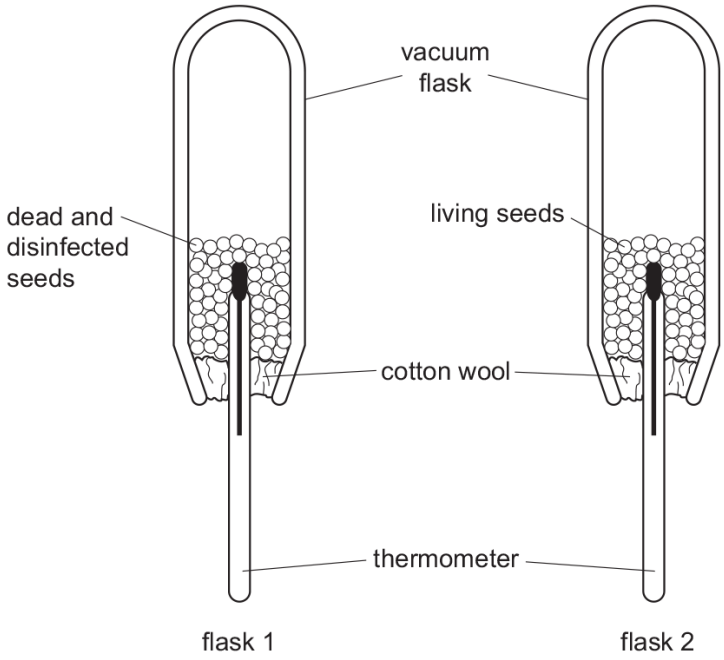
**D** sensitivity

---

31. 0610_w17_qp_23 Q: 11

The diagram shows the apparatus at the beginning of an investigation into temperature change during the germination of seeds. The temperature at the start of the investigation was 25 °C in both flasks.

After two days the temperature in flask 1 is 25 °C. The temperature in flask 2 is 28 °C.




Which characteristic of living organisms is shown in this experiment?

**A** excretion

**B** growth

**C** reproduction

**D** respiration

---

## 1.2 Concept and uses of classification systems

32. 0610_m23_qp_22 Q: 1

What is used as a means of classification?

**A** the number of strands of mRNA

**B** the shape of DNA molecules

**C** the sequence of bases in DNA

**D** the types of bases in DNA

---

33. 0610_s23_qp_21 Q: 2

The scientific name for the golden eagle is *Aquila chrysaetos.*

What is the genus of the golden eagle?

**A** *Aquila*

**B** *chrysaetos*

**C** eagle

**D** golden

---

34. 0610_s23_qp_22 Q: 2

Some statements about species are given.

1 Members of a species all look identical.

2 Members of a species belong to the same genus.

3 Members of a species can produce fertile offspring.

4 Species are named using an international system.

Which statements are correct?

**A** 1, 2, 3 and 4

**B** 1, 2 and 3 only

**C** 2 and 4 only

**D** 2, 3 and 4 only

---

35. 0610_w22_qp_21 Q: 2

Which name is given to a group of individuals that can reproduce to produce fertile offspring?

**A** a genus

**B** a kingdom

**C** a species

**D** an organ system

---

36. 0610_m21_qp_22 Q: 2

Which species can breed with *Prunella vulgaris* to produce fertile offspring?

| | *Prunella modularis* | *Vespula vulgaris* |
|---|---|---|
| **A** | ✓ | ✓ |
| **B** | ✓ | ✗ |
| **C** | ✗ | ✓ |
| **D** | ✗ | ✗ |

key

✓ = yes

✗ = no

---

37. 0610_s21_qp_21 Q: 2

The table shows a section of DNA taken from four different organisms.

| organism | base sequence | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| W | C | A | C | A | A | T | C | G | A | A |
| X | G | T | C | A | A | T | G | G | T | G |
| Y | C | T | C | A | A | T | C | G | T | A |
| Z | C | T | C | A | T | T | C | G | T | A |

Which two organisms are the most distantly related to each other?

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

---

38. 0610_s21_qp_22 Q: 2

The bonobo and the chimpanzee are two closely related species.

What is the **most** accurate method of deciding how closely related species are?

**A** compare evolutionary relationships of other species

**B** compare the base sequences of their DNA

**C** compare their anatomy

**D** compare their morphology

---

39. 0610_s21_qp_23 Q: 2

What is the most accurate method of classifying animals?

**A** comparing bones

**B** comparing the morphology of organisms

**C** identifying similarities in anatomy

**D** identifying similarities in DNA base sequences

---

40. 0610_w21_qp_21 Q: 2

Two animals have an identical sequence of amino acids in one of the proteins found in their cells.

What does this indicate about these animals?

**A** They have been eating the same types of food.

**B** They have not been exposed to substances that cause mutation.

**C** They must be members of the same genus.

**D** They share an ancestor.

---

41. 0610_m20_qp_22 Q: 2

Using the binomial naming system, the Arctic fox is called *Vulpes lagopus*.

Which row is correct?

| | *Vulpes* | *lagopus* |
|---|---|---|
| **A** | genus | kingdom |
| **B** | genus | species |
| **C** | species | genus |
| **D** | species | kingdom |

---

42. 0610_s20_qp_21 Q: 2

A rat has the scientific name *Rattus rattus*.

What do the two parts of this name refer to?

**A** genus and species

**B** kingdom and genus

**C** kingdom and species

**D** variety and genus

---

43. 0610_m19_qp_22 Q: 2

What is a correct way of naming a species using the binomial system?

**A** *Homo sapiens*

**B** *Homo Sapiens*

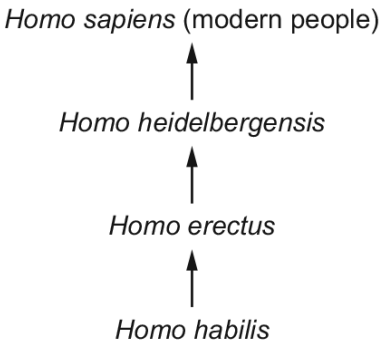
**C** human being

**D** sapiens

---

44. 0610_s19_qp_21 Q: 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.

---

45. 0610_w19_qp_21 Q: 2

Using the binomial system of naming organisms, the name of the lion is *Panthera leo*.

Which statement is correct?

**A** The lion belongs to the kingdom *Panthera*.

**B** The lion belongs to the genus *Panthera*.

**C** The lion belongs to the species *Panthera*.

**D** The lion belongs to the genus *leo*.

---

46. 0610_w19_qp_22 Q: 2

Which shows an organism that has been named using the binomial system?

**A** *Brown seaweed*

**B** *Polar bear*

**C** *Red fox*

**D** *Vulpes vulpes*

---

47. 0610_w19_qp_23 Q: 2

Donkeys and zebras are different species. They can breed to produce an animal called a zedonk.

Zedonks are not fertile.

Which statement is correct?

**A** Zedonks and donkeys are the same species.

**B** Zedonks and zebras are the same species.

**C** Zedonks are a species.

**D** Zedonks are not a species.

---

48. 0610_m18_qp_22 Q: 2

Two animals have an identical sequence of amino acids in one of the proteins found in their cells.

What does this indicate about these animals?

**A** They have been eating the same types of food.

**B** They have not been exposed to substances that cause mutation.

**C** They must be members of the same genus.

**D** They share a recent ancestor.

---

49. 0610_s18_qp_21 Q: 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*

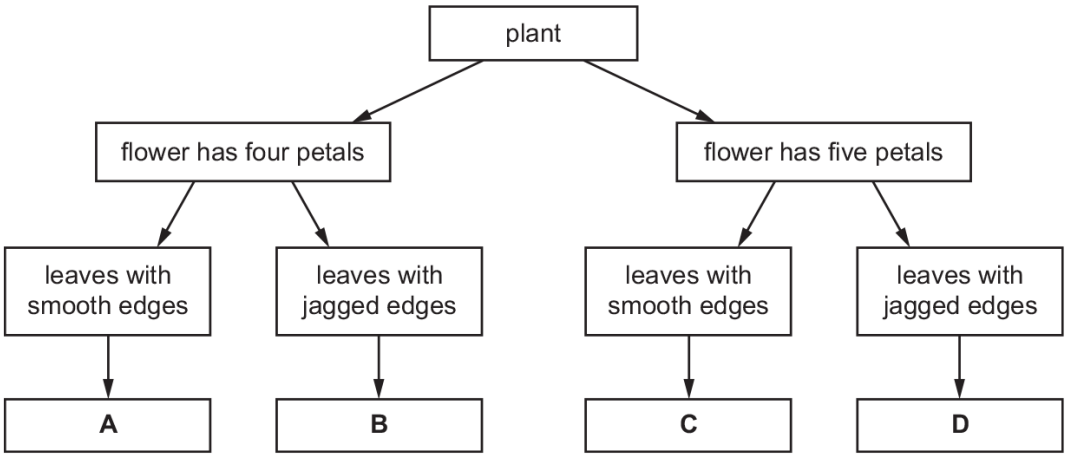
**D** vertebrate

---

50. 0610_s18_qp_21 Q: 4

The diagram shows a flowering plant.

Use the key to identify the plant.




---

51. 0610_w18_qp_21 Q: 2

Systems of classification show which organisms share more recent ancestors.

What is the most accurate system of classification?

**A** using anatomy

**B** using DNA base sequences

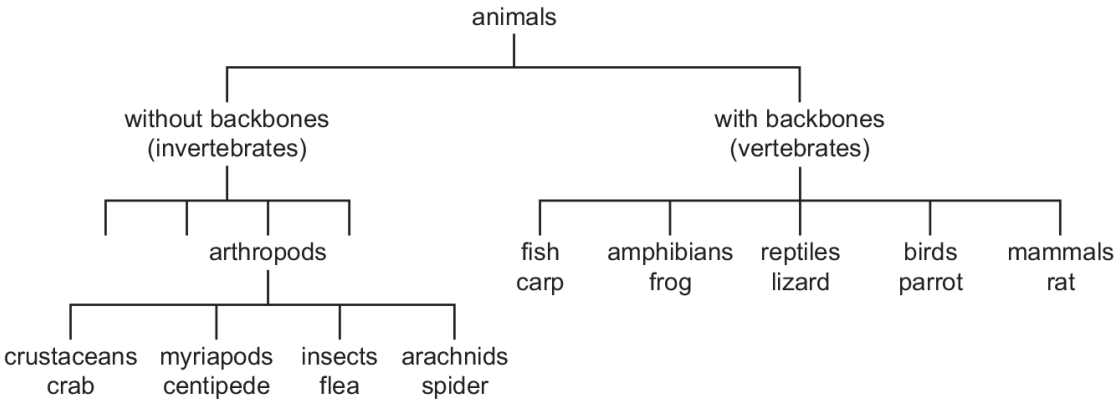
**C** using morphology

**D** using a pedigree diagram

---

52. 0610_m17_qp_22 Q: 3

The diagram shows part of the classification of the animal kingdom with an example of each group.




Which pair of animals have the most recent common ancestor as suggested by the classification?

**A** centipede and carp

**B** flea and frog

**C** lizard and parrot

**D** spider and rat

---

53. 0610_w17_qp_21 Q: 2

The diagram shows a section of DNA from a chimpanzee.

| A | G | C | T | A | C | A | G | A | G |
|---|---|---|---|---|---|---|---|---|---|

Which diagram shows a section of DNA from the organism that is most closely related to the chimpanzee?

**A**

| A | G | C | T | A | C | A | G | A | T |
|---|---|---|---|---|---|---|---|---|---|

**B**

| A | G | C | T | A | C | A | G | T | T |
|---|---|---|---|---|---|---|---|---|---|

**C**

| A | T | C | A | A | C | A | G | T | T |
|---|---|---|---|---|---|---|---|---|---|

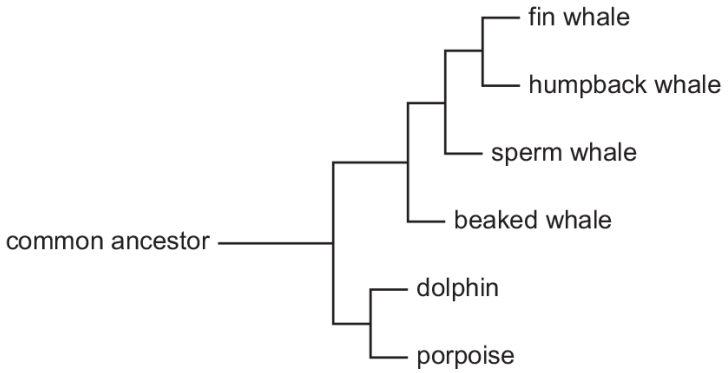
**D**

| A | T | C | T | A | C | A | G | T | T |
|---|---|---|---|---|---|---|---|---|---|

---

54. 0610_w17_qp_23 Q: 7

The diagram shows an evolutionary tree based on a computer-generated study of different sea mammals.




According to this evolutionary tree, which whale has DNA base sequences that are **least** shared with the other whales?

**A** beaked whale

**B** fin whale

**C** humpback whale

**D** sperm whale

---

## 1.3 Features of organisms

55. 0610_m23_qp_22 Q: 2

How many jointed legs does an insect have?

**A** two pairs

**B** three pairs

**C** four pairs

**D** more than six pairs

---

56. 0610_s23_qp_23 Q: 2

The photograph shows an organism.

Which visible feature can be used to classify this organism as a bird?

**A** feathers

**B** lays eggs

**C** two legs

**D** wings

# Appendix A

# Answers

| SN | Paper | Q. No. | Answer |
|---|---|---|---|
| 1 | 0610_s23_qp_21 | 1 | C |
| 2 | 0610_s23_qp_22 | 1 | A |
| 3 | 0610_s23_qp_23 | 1 | C |
| 4 | 0610_m22_qp_22 | 1 | B |
| 5 | 0610_s22_qp_21 | 1 | C |
| 6 | 0610_w22_qp_21 | 1 | C |
| 7 | 0610_m21_qp_22 | 1 | D |
| 8 | 0610_s21_qp_21 | 1 | D |
| 9 | 0610_w21_qp_21 | 1 | D |
| 10 | 0610_w21_qp_22 | 1 | B |
| 11 | 0610_w21_qp_23 | 1 | C |
| 12 | 0610_m20_qp_22 | 1 | B |
| 13 | 0610_s20_qp_21 | 1 | D |
| 14 | 0610_w20_qp_21 | 1 | D |
| 15 | 0610_w20_qp_22 | 1 | A |
| 16 | 0610_w20_qp_23 | 1 | B |
| 17 | 0610_m19_qp_22 | 1 | C |
| 18 | 0610_s19_qp_21 | 1 | B |
| 19 | 0610_s19_qp_22 | 1 | C |
| 20 | 0610_s19_qp_23 | 1 | C |
| 21 | 0610_w19_qp_21 | 1 | D |
| 22 | 0610_w19_qp_23 | 1 | C |
| 23 | 0610_m18_qp_22 | 1 | B |
| 24 | 0610_s18_qp_21 | 1 | A |
| 25 | 0610_w18_qp_21 | 1 | D |
| 26 | 0610_w18_qp_22 | 1 | D |
| 27 | 0610_w18_qp_23 | 1 | D |
| 28 | 0610_m17_qp_22 | 2 | B |
| 29 | 0610_w17_qp_21 | 1 | D |
| 30 | 0610_w17_qp_23 | 1 | D |
| 31 | 0610_w17_qp_23 | 11 | D |
| 32 | 0610_m23_qp_22 | 1 | C |
| 33 | 0610_s23_qp_21 | 2 | A |
| 34 | 0610_s23_qp_22 | 2 | D |
| 35 | 0610_w22_qp_21 | 2 | C |
| 36 | 0610_m21_qp_22 | 2 | D |
| 37 | 0610_s21_qp_21 | 2 | A |
| 38 | 0610_s21_qp_22 | 2 | B |
| 39 | 0610_s21_qp_23 | 2 | D |
| 40 | 0610_w21_qp_21 | 2 | D |
| 41 | 0610_m20_qp_22 | 2 | B |
| 42 | 0610_s20_qp_21 | 2 | A |
| 43 | 0610_m19_qp_22 | 2 | A |
| 44 | 0610_s19_qp_21 | 2 | C |
| 45 | 0610_w19_qp_21 | 2 | B |
| 46 | 0610_w19_qp_22 | 2 | D |
| 47 | 0610_w19_qp_23 | 2 | D |
| 48 | 0610_m18_qp_22 | 2 | D |
| 49 | 0610_s18_qp_21 | 2 | B |

| SN | Paper | Q. No. | Answer |
|---|---|---|---|
| 50 | 0610_s18_qp_21 | 4 | D |
| 51 | 0610_w18_qp_21 | 2 | B |
| 52 | 0610_m17_qp_22 | 3 | C |
| 53 | 0610_w17_qp_21 | 2 | A |
| 54 | 0610_w17_qp_23 | 7 | A |
| 55 | 0610_m23_qp_22 | 2 | B |
| 56 | 0610_s23_qp_23 | 2 | A |
| 57 | 0610_m22_qp_22 | 2 | C |
| 58 | 0610_s22_qp_21 | 2 | D |
| 59 | 0610_s22_qp_21 | 37 | A |
| 60 | 0610_m21_qp_22 | 3 | C |
| 61 | 0610_s21_qp_21 | 3 | D |
| 62 | 0610_m20_qp_22 | 3 | B |
| 63 | 0610_w20_qp_21 | 2 | B |
| 64 | 0610_w19_qp_21 | 3 | C |
| 65 | 0610_w19_qp_22 | 3 | A |
| 66 | 0610_w19_qp_23 | 3 | B |
| 67 | 0610_m18_qp_22 | 3 | D |
| 68 | 0610_s18_qp_21 | 3 | C |
| 69 | 0610_s18_qp_22 | 2 | B |
| 70 | 0610_s18_qp_22 | 3 | C |
| 71 | 0610_w18_qp_22 | 2 | B |
| 72 | 0610_w18_qp_23 | 2 | A |
| 73 | 0610_m17_qp_22 | 1 | C |
| 74 | 0610_w17_qp_22 | 1 | B |
| 75 | 0610_w17_qp_23 | 38 | A |
| 76 | 0610_m23_qp_22 | 3 | D |
| 77 | 0610_s23_qp_21 | 3 | C |
| 78 | 0610_s23_qp_22 | 3 | C |
| 79 | 0610_s23_qp_23 | 3 | B |
| 80 | 0610_m22_qp_22 | 4 | B |
| 81 | 0610_s22_qp_21 | 3 | A |
| 82 | 0610_s22_qp_21 | 4 | C |
| 83 | 0610_s22_qp_22 | 4 | C |
| 84 | 0610_s22_qp_23 | 4 | C |
| 85 | 0610_w22_qp_21 | 3 | B |
| 86 | 0610_w22_qp_21 | 4 | A |
| 87 | 0610_w22_qp_22 | 4 | B |
| 88 | 0610_w22_qp_23 | 4 | B |
| 89 | 0610_m21_qp_22 | 4 | C |
| 90 | 0610_m21_qp_22 | 5 | C |
| 91 | 0610_s21_qp_21 | 4 | C |
| 92 | 0610_s21_qp_21 | 5 | C |
| 93 | 0610_s21_qp_22 | 4 | B |
| 94 | 0610_s21_qp_23 | 4 | C |
| 95 | 0610_w21_qp_21 | 3 | C |
| 96 | 0610_w21_qp_21 | 5 | C |
| 97 | 0610_w21_qp_22 | 3 | B |
| 98 | 0610_w21_qp_23 | 3 | C |