Characteristics and classification of living organisms – 2023 November IGCSE 0610

1. June/2023/Paper_0610/11/No.1

What are characteristics of all organisms?

A egestion and excretion

B egestion and nutrition

C excretion and nutrition

D excretion and photosynthesis

2. June/2023/Paper_0610/11/No.2

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

What is the genus of the golden eagle?

A *Aquila*

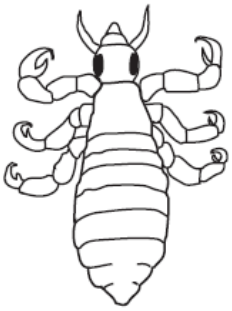
B *chrysaetos*

C eagle

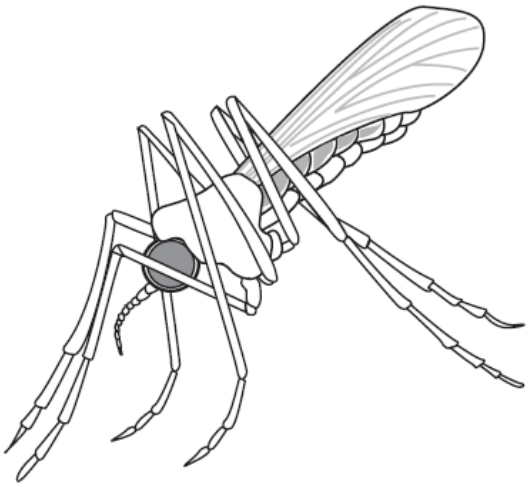
D golden

3. June/2023/Paper_0610/11/No.3

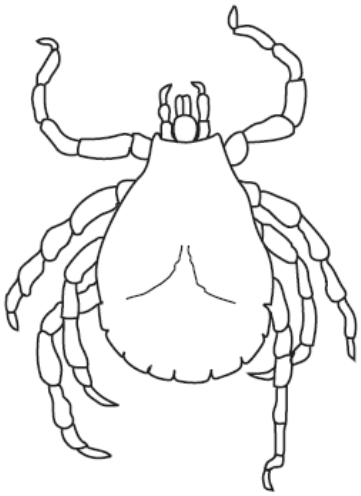
The diagram shows four arthropods.



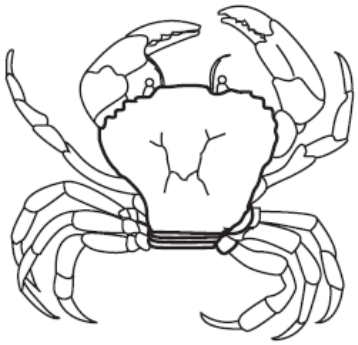
Pediculus ×20



Anopheles ×10



Dermacentor ×7



Carcinus ×0.5

How many of these arthropods are insects?

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

4. June/2023/Paper_0610/12/No.1

Living animals release carbon dioxide.

This is an example of which life process?

A excretion

B movement

C nutrition

D sensitivity

5. June/2023/Paper_0610/12/No.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

6. June/2023/Paper_0610/12/No.3

The table shows some features of different animals.

Which animal is a reptile?

	wings	hair	scales
A	✗	✗	✓
B	✗	✗	✗
C	✓	✗	✓
D	✗	✓	✗

7. June/2023/Paper_0610/12/No.4

Which structures are found in the cells of all living organisms?

1 cell membrane

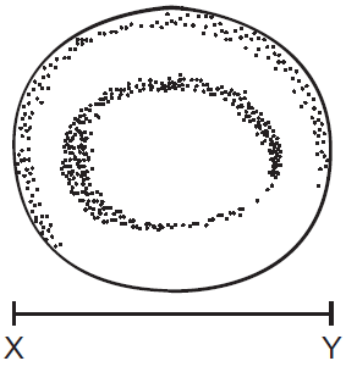
2 chloroplast

3 cytoplasm

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

8. June/2023/Paper_0610/12/No.5

A diagram of a human red blood cell is shown. The length of line XY on the diagram is 40 mm. The actual width of the cell is 0.008 mm.



What is the magnification of the diagram?

A ×500 **B** ×5000 **C** ×50 000 **D** ×500 000

9. June/2023/Paper_0610/13/No.1

What are excretion, sensitivity and reproduction characteristics of?

A all animals and all plants

B animals only

C plants only

D some animals and some plants

10. June/2023/Paper_0610/13/No.2

The photograph shows an organism.

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

A feathers

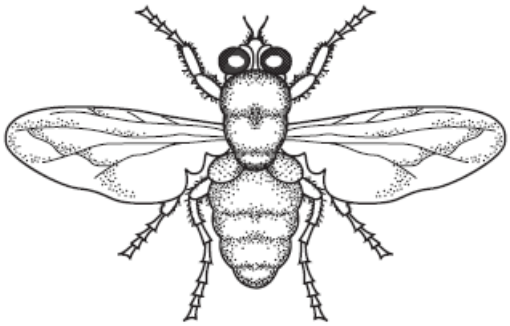
B lays eggs

C two legs

D wings

11. June/2023/Paper_0610/13/No.3

The diagram shows an arthropod.



Which features are characteristic of **all** arthropods?

A jointed legs and segmented body

B jointed legs and thorax

C segmented body and wings

D thorax and wings

12. June/2023/Paper_0610/13/No.4

Which statement about cell structure is correct?

A An animal cell has a cell wall.

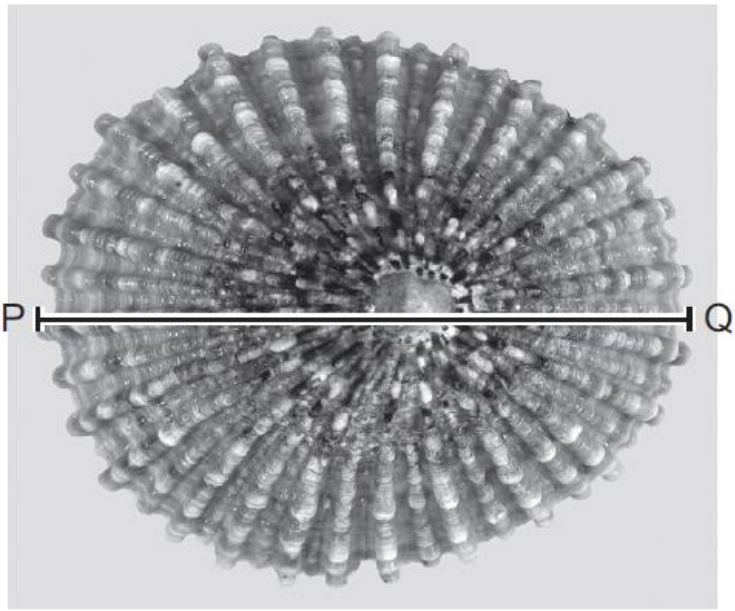
B A bacterium has a cell wall.

C An animal cell has chloroplasts.

D A bacterium has chloroplasts.

13. June/2023/Paper_0610/13/No.5

The photograph shows a limpet. The length of line PQ on the image is 65 mm.



×2.5

What is the actual diameter of the limpet along line PQ?

A 2.6 mm **B** 19.5 mm **C** 26 mm **D** 195 mm

14. June/2023/Paper_0610/21/No.1

What are characteristics of all organisms?

A egestion and excretion

B egestion and nutrition

C excretion and nutrition

D excretion and photosynthesis

15. June/2023/Paper_0610/21/No.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

16. June/2023/Paper_0610/21/No.3

Which row shows structures that are present in both root hair cells and palisade mesophyll cells?

	cell wall	chloroplasts	cytoplasm	vacuole
A	✓	✓	✓	✗
B	✗	✓	✓	✓
C	✓	✗	✓	✓
D	✓	✓	✗	✓

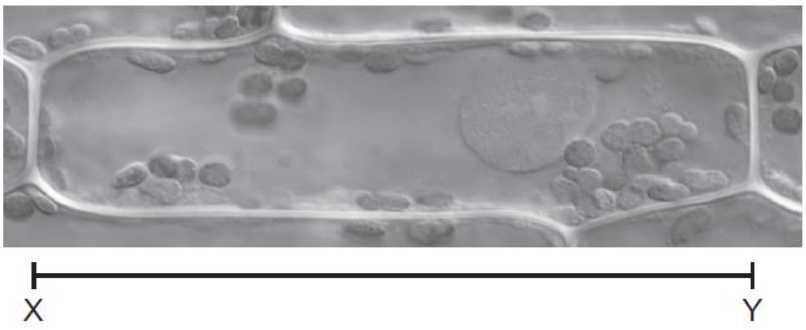
key

✓ = present

✗ = absent

17. June/2023/Paper_0610/21/No.4

The photomicrograph shows a plant cell. The length of line XY is 90 mm. The actual length of the cell is 30 µm.



What is the magnification of the photomicrograph?

A ×300 **B** ×3000 **C** ×33 000 **D** ×330 000

18. June/2023/Paper_0610/22/No.1

Which process occurs both in plants and in animals?

A excretion

B phagocytosis

C photosynthesis

D transpiration

19. June/2023/Paper_0610/22/No.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

20. June/2023/Paper_0610/22/No.3

Which structures are found in the cells of all living organisms?

1 cell membrane

2 chloroplast

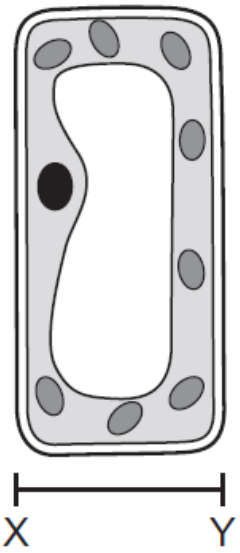
3 cytoplasm

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

21. June/2023/Paper_0610/22/No.4

In the diagram of the palisade cell, the distance between X and Y is 20 mm.

The actual width of the cell between X and Y is 40 µm.



What is the magnification of the diagram?

A ×200 **B** ×500 **C** ×2500 **D** ×5000

22. une/2023/Paper_0610/23/No.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

23. June/2023/Paper_0610/23/No.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

24. June/2023/Paper_0610/23/No.3

Which statement about cell structure is correct?

A An animal cell has a cell wall.

B A bacterium has a cell wall.

C An animal cell has chloroplasts.

D A bacterium has chloroplasts.

25. June/2023/Paper_0610/23/No.4

The diameter of an egg cell from a frog is 2.5 mm.

The diameter of an egg cell from a human is 120 μm.

Which value shows approximately how many times larger an egg cell from a frog is than an egg cell from a human?

A ×2 **B** ×21 **C** ×48 **D** ×300

26. June/2023/Paper_0610/31/No.1

(a) Describe the meaning of the term species.

.....

.....

..... [2]

(b) Fig. 1.1 is a photograph of *Lithobius forficatus*, a species of myriapod.

Fig. 1.1

(i) State the genus of the organism shown in Fig. 1.1.

..... [1]

(ii) State **one** feature **visible** in Fig. 1.1 that identifies the organism as:

a myriapod .....

an arthropod. .....
[2]

(iii) State the names of **two** groups of arthropods, other than myriapods.

1 .....

2 .....
[2]

(iv) State **two** features of plant cells that would be **absent** in the cells of the organism shown in Fig. 1.1.

1 .....

2 .....

[2]

(c) Adaptive features enable organisms to survive in their environment.

Fig. 1.2 is a photograph of another species of arthropod. Some of its adaptive features are visible in Fig. 1.2.

Fig. 1.2

(i) State **one** adaptive feature visible in Fig. 1.2 that reduces water loss when the organism is on land.

..... [1]

(ii) State the name of the kingdom that the organism in Fig. 1.2 belongs to.

..... [1]

[Total: 11]

27. June/2023/Paper_0610/32/No.1

Fig. 1.1 shows a photograph of a pseudoscorpion.

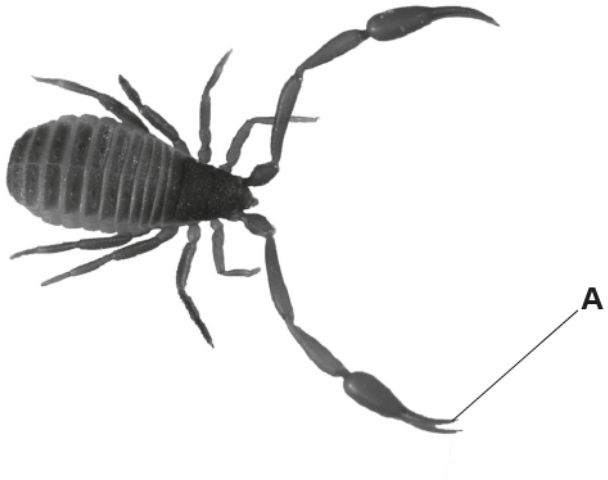


Fig. 1.1

(a) (i) State **two** features, **visible** in Fig. 1.1, that can be used to classify this organism as an arachnid.

1 .....

2 .....

[2]

(ii) State the kingdom that arachnids belong to.

..... [1]

(b) (i) Complete the definition of the term adaptive feature by inserting the missing words.

An adaptive feature is an ..... feature that helps an organism to

..... and ..... in its environment.

[3]

(ii) The part labelled **A** in Fig. 1.1 is an adaptive feature of the pseudoscorpion.

Suggest a function of the part labelled **A** in Fig. 1.1.

.....

.....

..... [1]

[Total: 7]

28. June/2023/Paper_0610/32/No.2a

(a) Fig. 2.1 is a diagram showing some of the structures found in a plant cell.

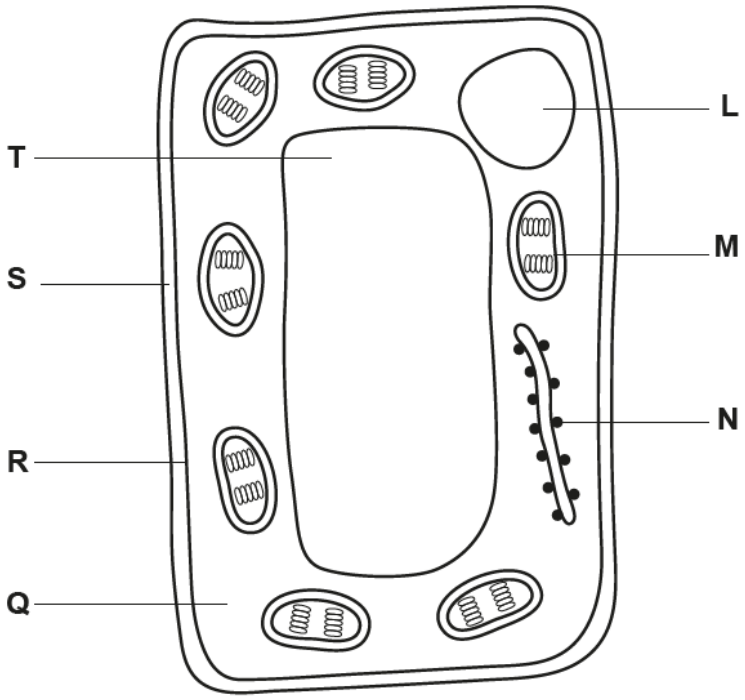


Fig. 2.1

Table 2.1 shows the names of some plant cell structures, their functions and the letters that identify them in Fig. 2.1.

Complete Table 2.1 by writing the missing name, letters and functions in the spaces provided.

Table 2.1

name of structure	letter from Fig. 2.1	**one** function
chloroplast		site of photosynthesis
ribosome	**N**	
cell wall		prevents the cell bursting
	L	

[5]

29. June/2023/Paper_0610/33/No.1

(a) Fig. 1.1 is a photograph of an insect. Insects are arthropods.

Fig. 1.1

(i) Arthropods belong to the animal kingdom.

State the name of **one other** kingdom.

..... [1]

(ii) State **one** feature **visible** in Fig. 1.1 that is present in insects but **not** in the other groups of arthropods.

..... [1]

(iii) Complete Table 1.1 by writing:

- the names of **two** groups of arthropods **other than** insects
- **one** identifying feature for each named group.

Table 1.1

arthropod group	name of the arthropod group	identifying feature
1		
2		

[4]

(b) (i) Complete the description of an adaptive feature.

An adaptive feature is an ..... feature that helps an organism to survive and ..... in its environment.

[2]

(ii) Fig. 1.2 is a photograph of a leaf insect.

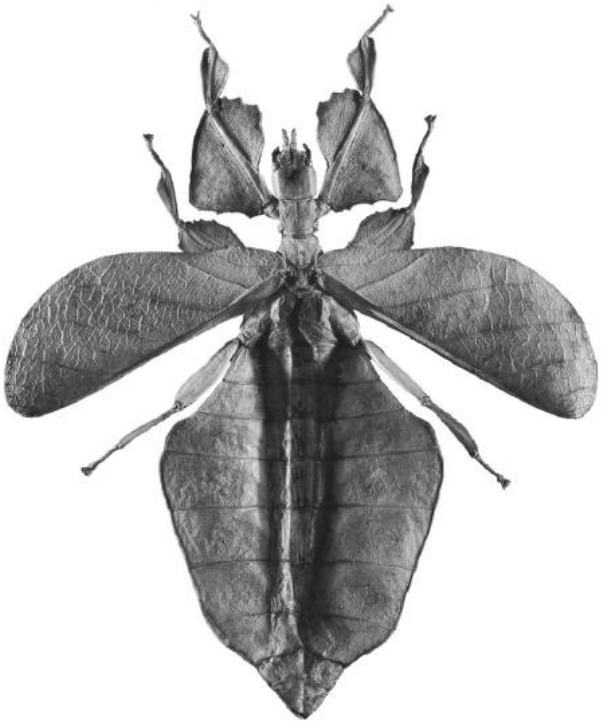


Fig. 1.2

State **one** adaptive feature **visible** in Fig. 1.2 and suggest how the adaptive feature helps the animal to survive.

feature .....

.....

suggestion .....

.....

.....

[2]

[Total: 10]

30. June/2023/Paper_0610/33/No.2

(a) Fig. 2.1 is a labelled diagram of an animal cell.

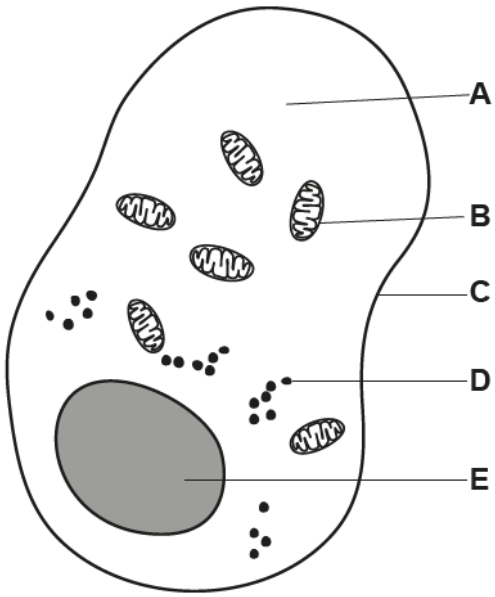


Fig. 2.1

(i) The boxes on the left show the functions of some of the structures shown in Fig. 2.1.

The boxes on the right show the letters of the structures labelled in Fig. 2.1.

Draw lines to link each function to the correct letter.

Draw **four** lines.

functions	**letter in Fig. 2.1**
contains and supports other cell structures	**A**
controls the activities of the cell	**B**
controls which substances enter or leave the cell	**C**
protein synthesis	**D**
	E

[4]

(ii) State **two** letters shown in Fig. 2.1 that identify structures which are also found in bacterial cells.

..... and .....

[2]

(b) Respiration is a characteristic of living organisms.

State **three other** characteristics of all living organisms.

1 .....

2 .....

3 .....

[3]

[Total: 9]

31. June/2023/Paper_0610/42/No.3b

(b) **(i)** Bacteria are prokaryotes.

State **two** features of **all** prokaryotes.

1 .....

2 .....

[2]

(ii) Some bacteria have a flagellum.

State the function of a flagellum.

..... [1]

32. March/2023/Paper_ 0610/12/No.2

Which two parts are included in the scientific name of an organism?

A genus and group

B genus and species

C group and kingdom

D kingdom and species

33. March/2023/Paper_ 0610/12/No.3

How many jointed legs does an insect have?

A two pairs

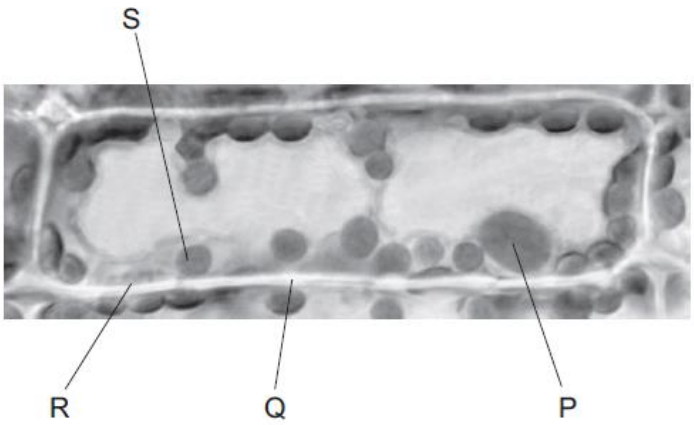
B three pairs

C four pairs

D more than six pairs

34. March/2023/Paper_ 0610/12/No.4

The photomicrograph shows a cell from a type of aquatic plant.



Which labelled parts indicate that this is a plant cell?

A P and R **B** P and S **C** Q and R **D** Q and S

35. March/2023/Paper_ 0610/42/No.3

(a) Fig. 3.1 shows part of a classification diagram for plants.

(i) Complete Fig. 3.1.

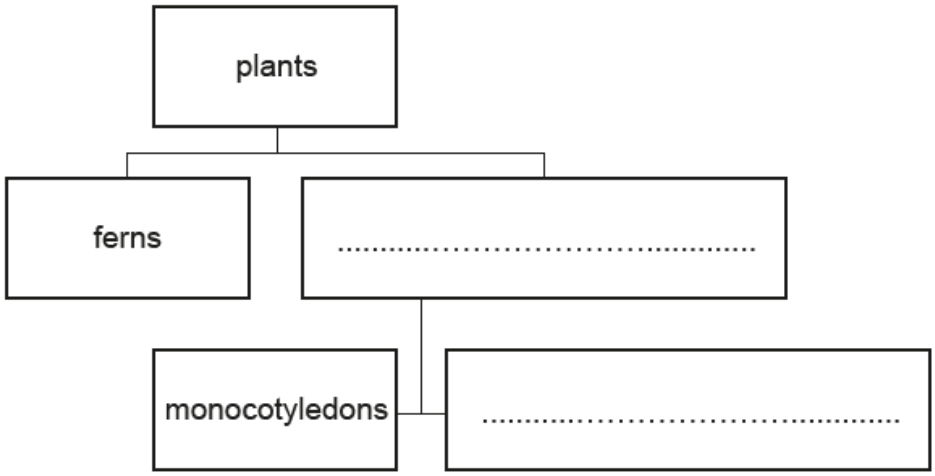


Fig. 3.1

[2]

(ii) Describe **two** identifying features of monocotyledons.

1 .....

2 .....

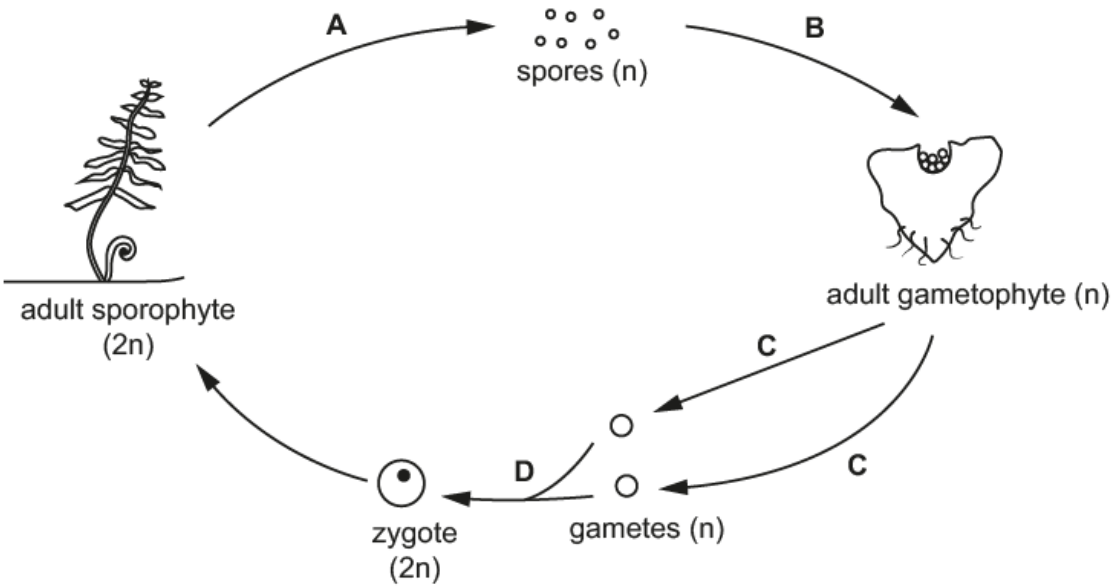
[2]

(b) Fig. 3.2 shows the life cycle of a fern. The life cycle of a fern has some similarities and some differences compared with the life cycles of other plants.

The letters represent processes that occur during the life cycle.

The haploid stages of the life cycle are represented by (n).

The diploid stages of the life cycle are represented by (2n).



not to scale

Fig. 3.2

(i) The adult sporophyte has 1200 chromosomes in its body cells.

State the number of chromosomes in the body cells of the gametophyte.

..... [1]

(ii) Identify and describe process **A** in Fig. 3.2.

.....

.....

.....

.....

.....

.....

..... [3]

(iii) State the name of process **D** in Fig. 3.2.

..... [1]

(c) Fig. 3.3 shows the parts of two flowers from two different plants of the same species.

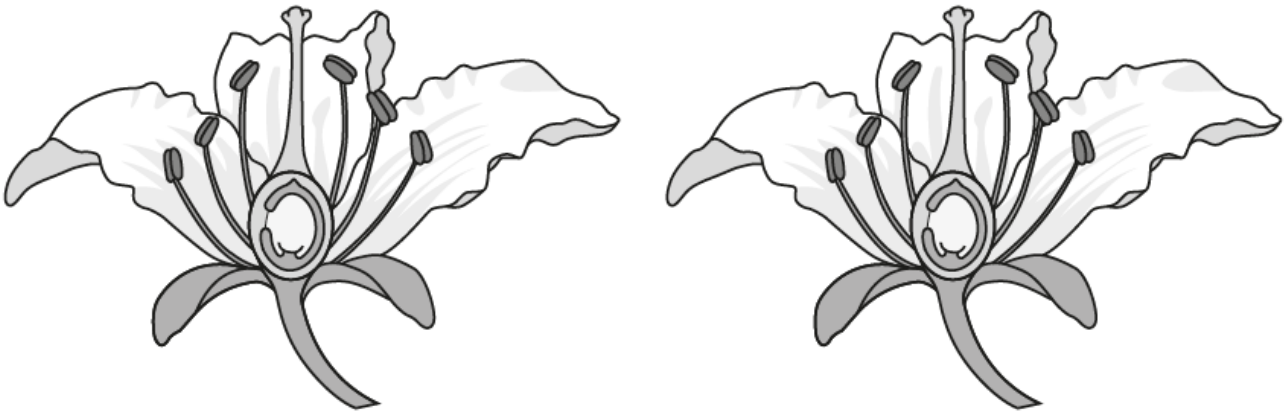


Fig. 3.3

(i) Describe what is meant by the term species.

.....

.....

.....

.....

..... [2]

(ii) Annotate Fig. 3.3 to show the mechanism of cross-pollination by:

- labelling the structures involved
- drawing an arrow to show the pathway of pollen.

[3]

(iii) Draw an **X** on Fig. 3.3 to show where fertilisation occurs. [1]

(iv) Explain the disadvantages of cross-pollination compared with self-pollination.

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 18]