Characteristics and classification of living organisms – 2022 IGCSE 0610

1. June/2022/Paper_ 11/No.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

2. June/2022/Paper_ 11/No.2

The horse, *Equus ferus*, and the donkey, *Equus asinus*, are able to interbreed. The offspring they produce is called a mule.

Which statement is correct?

A The horse and the donkey are the same genus; the mule is infertile.

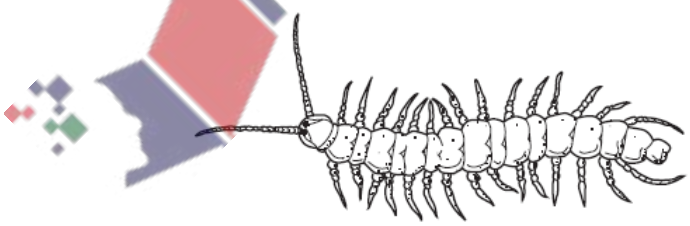
B The horse and the donkey are the same species; the mule is infertile.

C The horse and the donkey are the same genus; the mule is fertile.

D The horse and the donkey are the same species; the mule is fertile.

3. June/2022/Paper_ 11/No.3

The diagram shows an organism.



Which type of arthropod is this organism?

A myriapod

B insect

C crustacean

D arachnid

4. June/2022/Paper_ 11/No.6

A student found four different worms in a sample of soil and drew diagrams of them. The diagrams were drawn with different magnifications.

Which worm was the longest?

	length of diagram / mm	magnification
A	60	×3
B	70	×1
C	100	×2
D	120	×5

5. June/2022/Paper_ 12/No.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. June/2022/Paper_ 12/No.2

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

	genus	kingdom	species
A	✓	✓	✓
B	✓	✓	✗
C	✓	✗	✓
D	✗	✓	✓

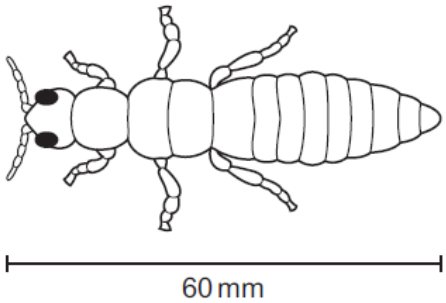
key

✓ = yes

✗ = no

7. June/2022/Paper_ 12/No.6

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



What is the magnification of the diagram?

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

8. June/2022/Paper_ 13/No.5

Which level of organisation is shown by the heart of a mammal?

A a cell

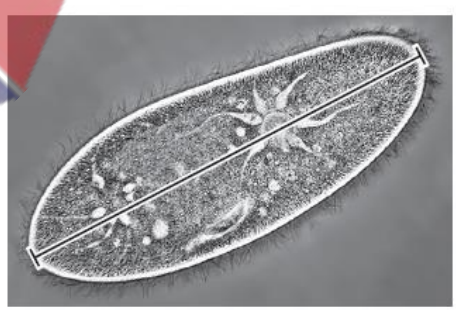
B a tissue

C an organ

D an organ system

9. June/2022/Paper_ 13/No.6

The image shows a single-celled organism called a *Paramecium*.



The length of the *Paramecium* in the image is 6 cm. The magnification is ×400.

Which calculation will give the correct actual length of the *Paramecium*, in mm?

A $\frac{6 \times 10}{400}$ **B** $\frac{6 \times 1000}{400}$ **C** $\frac{400 \times 10}{6}$ **D** $\frac{400}{6 \times 1000}$

10. June/2022/Paper_ 21/No.1

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

What is the name of this characteristic?

A growth

B nutrition

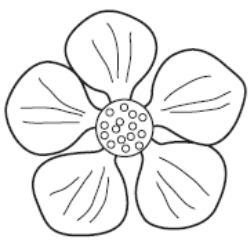
C respiration

D sensitivity

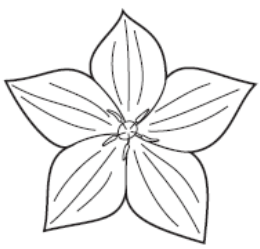
11. June/2022/Paper_ 21/No.2

Which diagram shows a flower from a monocotyledon?

A



B

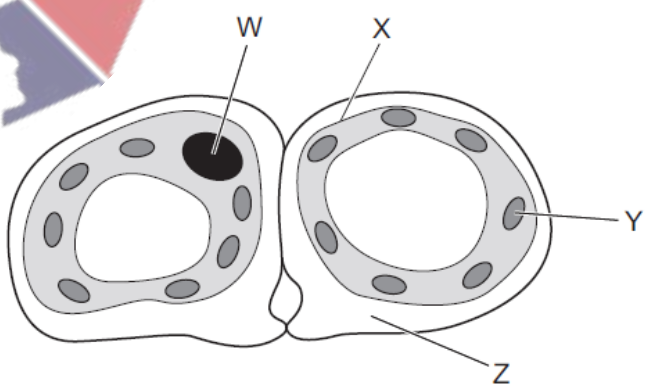


C

D

12. June/2022/Paper_ 21/No.3

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



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

13. June/2022/Paper_ 23/No.1

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

What is the name of this characteristic?

A growth

B nutrition

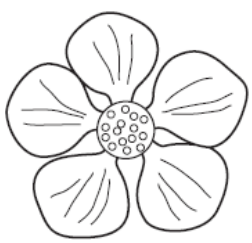
C respiration

D sensitivity

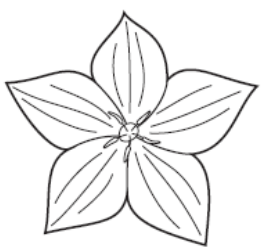
14. June/2022/Paper_ 23/No.2

Which diagram shows a flower from a monocotyledon?

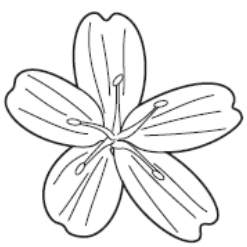
A



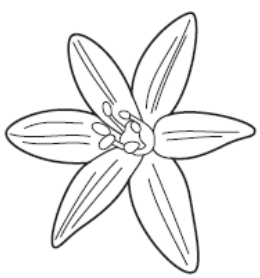
B



C



D



15. June/2022/Paper_ 31/No.1(a_ b)

(a) Fig. 1.1 is a diagram of a plant cell.

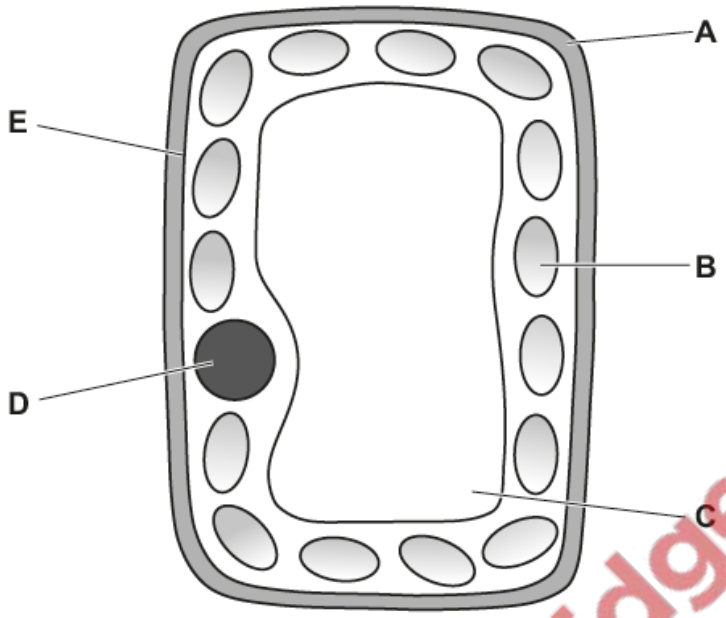


Fig. 1.1

The boxes on the left contain the letters that identify some parts of the plant cell in Fig. 1.1.
The boxes on the right show the functions of some parts of a cell.
Draw **five** lines to link each letter to its correct function.

letter from Fig. 1.1	**function**
	contains the genetic material
A	
	controls which substances enter and leave the cell
B	
	filled with sap to support the cell
C	
	strengthens the cell
D	
	transports nerve impulses
E	
	where photosynthesis occurs

[5]

(b) State the names of **two** different types of plant cell.

1 .....

2 .....

[2]

16. June/2022/Paper_ 41/No.1(a)

(a) Some students were studying the activity of yeast. They made a fact file, as shown in Fig. 1.1.

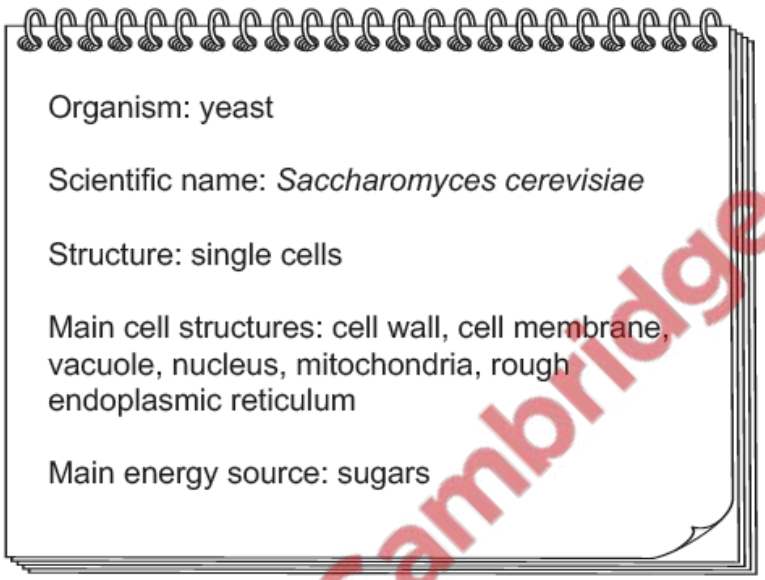


Fig. 1.1

(i) State the kingdom in which yeast is classified.

..... [1]

(ii) State the process that occurs in mitochondria to provide energy for yeast cells.

..... [1]

17. June/2022/Paper_ 41/No.5(a)

The Mulanje cedar, *Widdringtonia whytei*, is the national tree of Malawi. This species of tree grows naturally only on Mount Mulanje in Malawi. Many of the trees have been overharvested or destroyed by wildfires, resulting in deforestation, as shown in Fig. 5.1.

Fig. 5.1

(a) State the genus name of the Mulanje cedar tree.

..... [1]

18. June/2022/Paper_ 42/No.1(a_ d)

Fig. 1.1 shows a spongy mesophyll cell from the leaf of a plant. The arrows show the net direction of movement of carbon dioxide molecules during daylight.

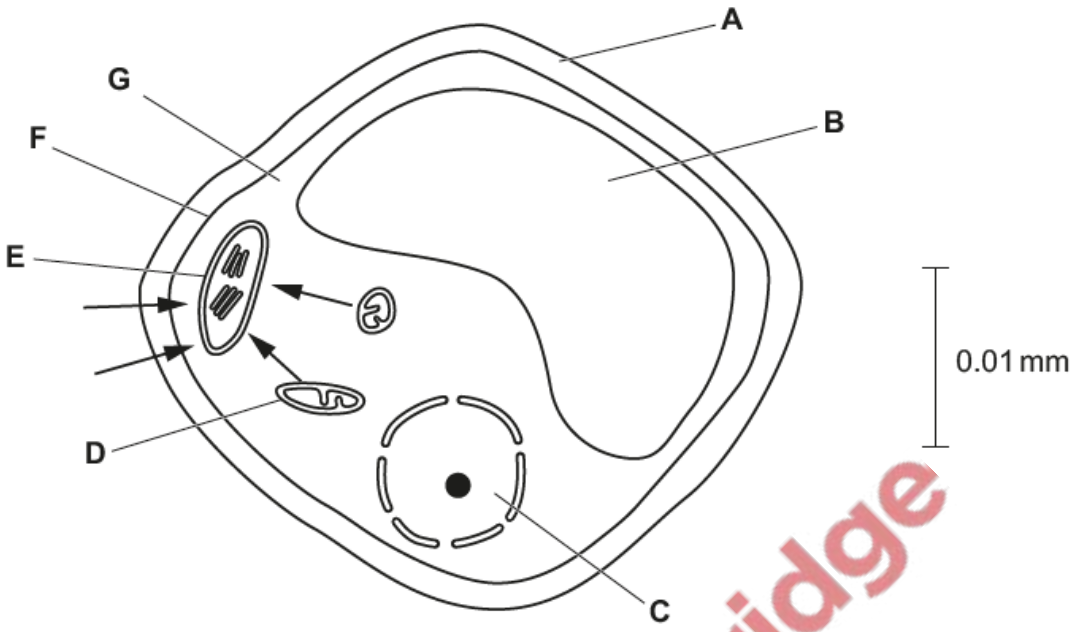


Fig. 1.1

(a) The scale bar in Fig. 1.1 represents 0.01 mm.

Convert 0.01 mm to micrometres.

..... µm [1]

(b) Table 1.1 shows:

- the functions of some of the structures in plant cells
- some of the names of the structures where these functions occur
- some of the letters that label these structures in Fig. 1.1.

Complete Table 1.1.

Table 1.1

function	structure	letter in Fig. 1.1
	nucleus	
	chloroplast	
aerobic respiration		
contains cell sap and stores water		
		A

[5]

(c) Carbon dioxide is a raw material for photosynthesis.

(i) State the process by which carbon dioxide travels into the leaf from the air.

..... [1]

(ii) Describe the pathway taken by a molecule of carbon dioxide, from the air outside a leaf to a spongy mesophyll cell.

.....

.....

.....

.....

..... [2]

(d) Low concentrations of carbon dioxide in the air may restrict the rate of photosynthesis in plants.

(i) State the term given to something present in the environment in such short supply that it restricts life processes.

..... [1]

(ii) State **one** other feature of the environment that may also restrict the rate of photosynthesis.

..... [1]

19. June/2022/Paper_ 43/No.6(a)

(a) Fig. 6.1 shows a photograph of fruit attached to the branch of an orange tree, *Citrus sinensis*.

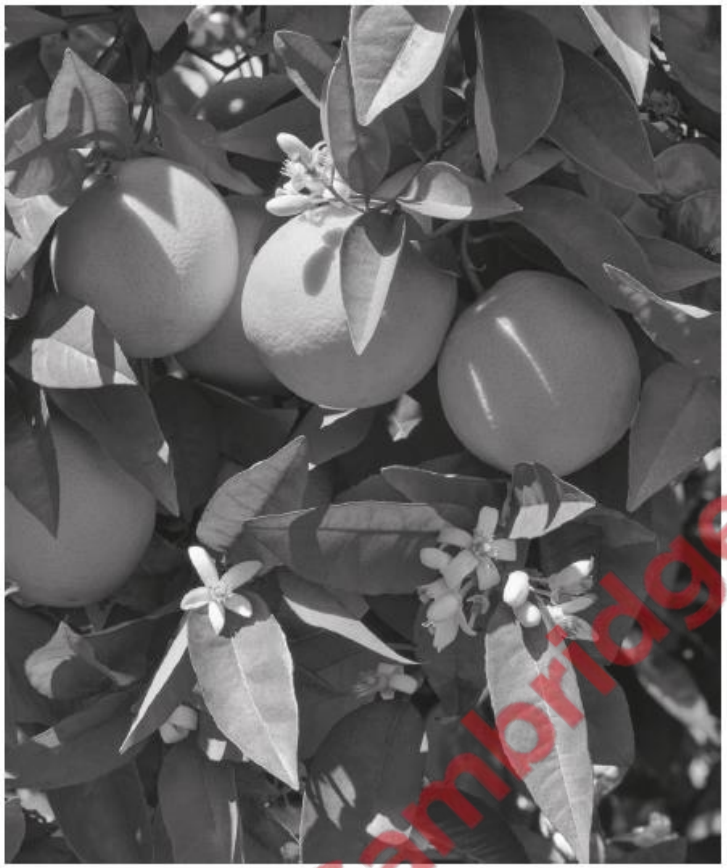


Fig. 6.1

State **one** reason why orange trees are classified as dicotyledonous plants.

.....

.....

..... [1]