Transport in plants – 2020 IGCSE 0610

1. March/2020/Paper_12/No.17

When stems with white flowers are cut and placed in a blue stain the petals turn blue.

Which tissue in the stem does the stain travel through to reach the petals?

A epidermis

B mesophyll

C phloem

D xylem

2. March/2020/Paper_12/No.18

Which process releases water vapour into the atmosphere from the leaves of trees?

A active transport

B osmosis

C respiration

D transpiration

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5. March/2020/Paper_32/No.6

(a) Complete the definition of the term transpiration.

Transpiration is the loss of water vapour from plant leaves by ..... of water at the surfaces of the ..... cells followed by diffusion of water vapour through the ..... .

[3]

(b) Fig. 6.1 is a graph showing how temperature affects water loss in a plant with many leaves.

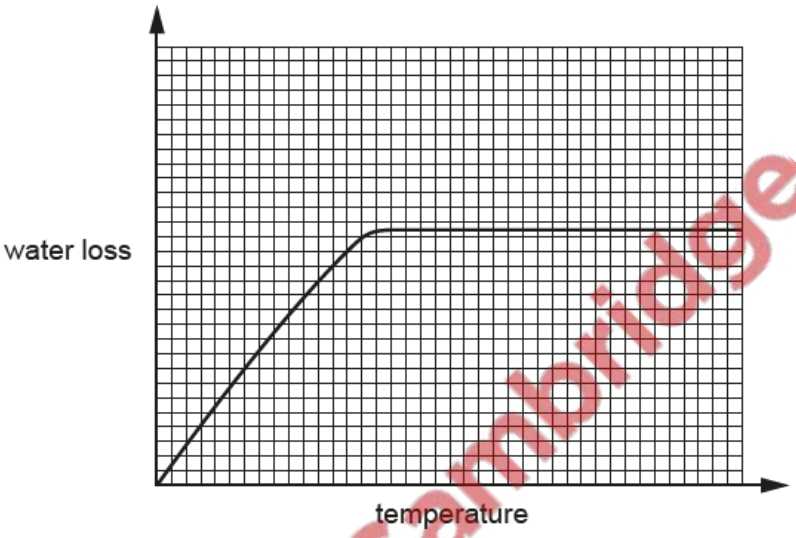

Fig. 6.1

(i) Half of the leaves were removed from the plant.

Predict the effect on water loss in this plant and sketch a line on Fig. 6.1 to show your prediction. [2]

(ii) Describe the effect of humidity on the rate of transpiration.

.....

.....

..... [1]

(c) Water is an important substance for plants.

(i) Describe **two** uses of water in plants.

1 .....

2 .....

[2]

(ii) State the name of the vessels that transport water in plants.

..... [1]

(iii) State the name of the cells where water enters a plant.

..... [1]

[Total: 10]

6. June/2020/Paper_11/No.13

After passing through the root hair cells of a plant, what is the next tissue through which water passes?

A cortex

B epidermis

C mesophyll

D xylem

7. June/2020/Paper_11/No.14

From which part of a leaf does most water evaporate during transpiration?

A the cuticle

B the guard cells

C the spongy mesophyll cells

D the xylem vessels

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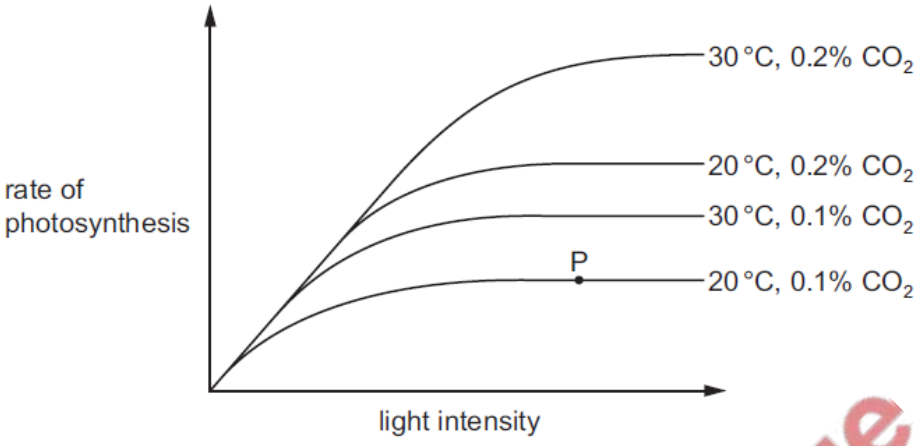
12. June/2020/Paper_21/No.11

The diagram shows how the rate of photosynthesis varies with light intensity.

The four curves show different conditions of temperature and carbon dioxide concentration.



What limits the rate of photosynthesis at point P?

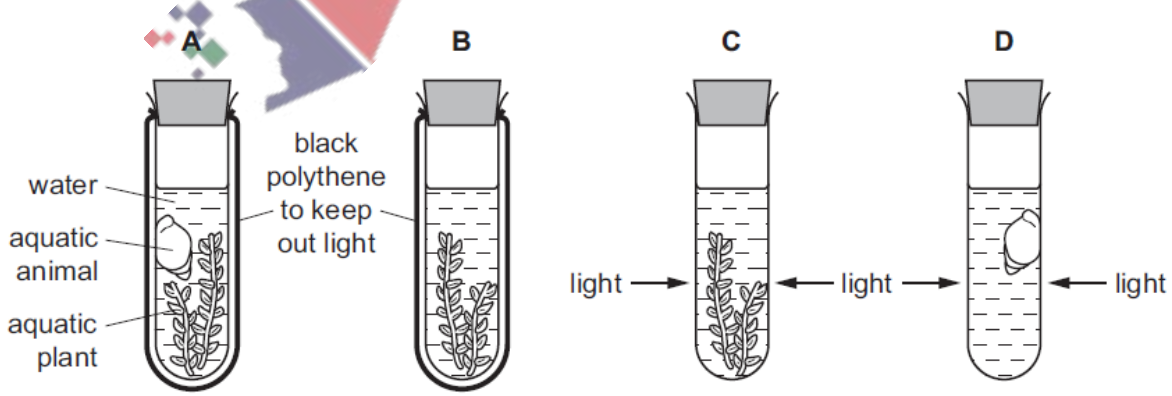
	light intensity	carbon dioxide concentration	temperature
A	✓	✓	✗
B	✓	✗	✗
C	✗	✓	✓
D	✗	✗	✓

key
✓ = yes
✗ = no

13. June/2020/Paper_21/No.12

Four test-tubes are set up as shown.

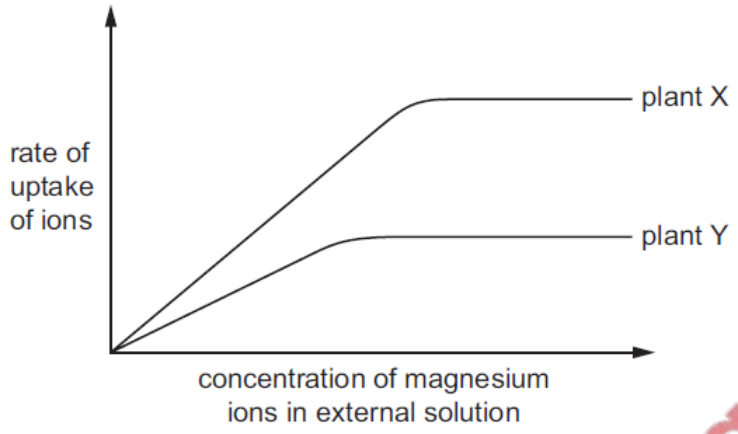
Which test-tube contains the least carbon dioxide after one hour?



14. June/2020/Paper_21/No.15

The graph shows the rate of uptake of magnesium ions by two similar plants, X and Y.

The roots of each plant were placed in a range of solutions. Each solution contained a different concentration of magnesium ions. All other conditions were kept constant.



What is a possible explanation for the difference in the results for the two plants?

A Plant Y has fewer protein molecules for magnesium ion transport in its cell membranes.

B Plant Y has a higher rate of respiration.

C Plant Y has more root hair cells.

D The root hair cells in plant Y have a lower water potential.

15. June/2020/Paper_21/No.16

What will increase the rate of transpiration in a plant?

A an increase in the humidity of the atmosphere surrounding the leaf

B an increase in the surface area of the cell surfaces inside the leaf

C a decrease in the number of stomata present on the surface of the leaf

D a decrease in the temperature of the atmosphere surrounding the leaf

16. June/2020/Paper_22/No.15

Which change increases the rate of water uptake by the roots of a plant?

A decrease in evaporation of water from mesophyll cells

B decrease in length of root hairs

C decrease in water potential of root hair cells

D decrease in water potential of soil water

17. June/2020/Paper_23/No.15

Samphire is a plant that grows in coastal areas. It has adaptations that enable it to live in areas with high salt concentration in the soil and strong winds.

Which adaptations would samphire possess to minimise water loss from root cells by osmosis and leaves by evaporation?

	salt concentration in root cells	leaf surface area
A	high	high
B	high	low
C	low	high
D	low	low

18. June/2020/Paper_23/No.16

Which row correctly states the pair of conditions that will result in the highest rate of transpiration?

	temperature	humidity
A	high	low
B	high	high
C	low	high
D	low	low