Transport in flowering plants – 2022 June O Level 5090

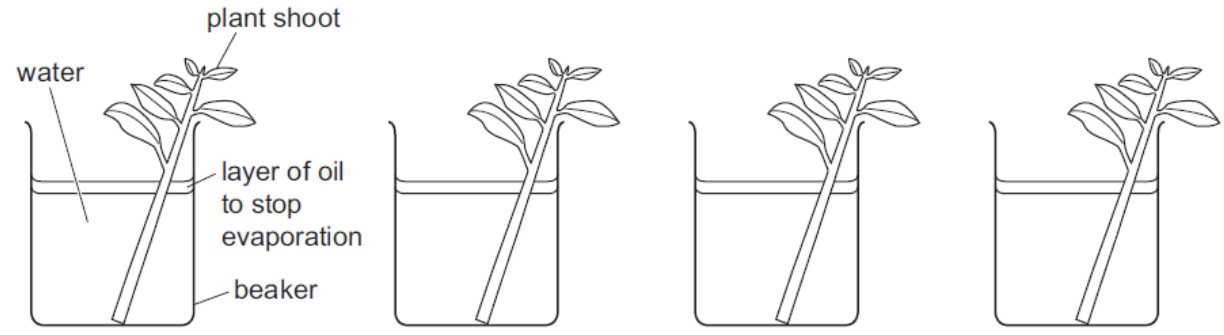
1. June/2022/Paper_11/No.12

Four plant shoots were set up as shown in the diagram, in the same environmental conditions.

Waterproof petroleum jelly was applied to the plant leaf surfaces, as shown.

Each beaker, with its plant shoot and water, was weighed at the start of the experiment and after 24 hours.

After 24 hours the percentage loss in mass was calculated for each plant shoot.



plant 1
petroleum jelly on lower leaf surfaces

plant 2
petroleum jelly on upper leaf surfaces

plant 3
petroleum jelly on upper and lower leaf surfaces

plant 4
no petroleum jelly

Which row shows the results of this experiment?

	percentage loss in mass after 24 hours			
	plant 1	plant 2	plant 3	plant 4
A	15	5	12	3
B	5	12	3	15
C	3	5	13	15
D	3	15	5	12

2. June/2022/Paper_11/No.13

What is the main cause of water moving up to the leaves in xylem vessels?

A active transport

B evaporation from the epidermis of the leaf

C evaporation from the walls of the mesophyll cells

D use of water in photosynthesis

3. June/2022/Paper_12/No.2

Xylem vessels are cells that have become adapted for conduction and support.

Which two adaptations assist them in these functions?

A presence of a nucleus and cytoplasm

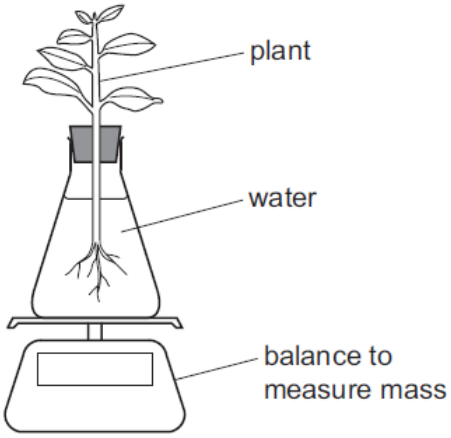
B lack of cytoplasm and woody cell walls

C lack of a nucleus and presence of cytoplasm

D presence of cytoplasm and woody cell walls

4. June/2022/Paper_12/No.12

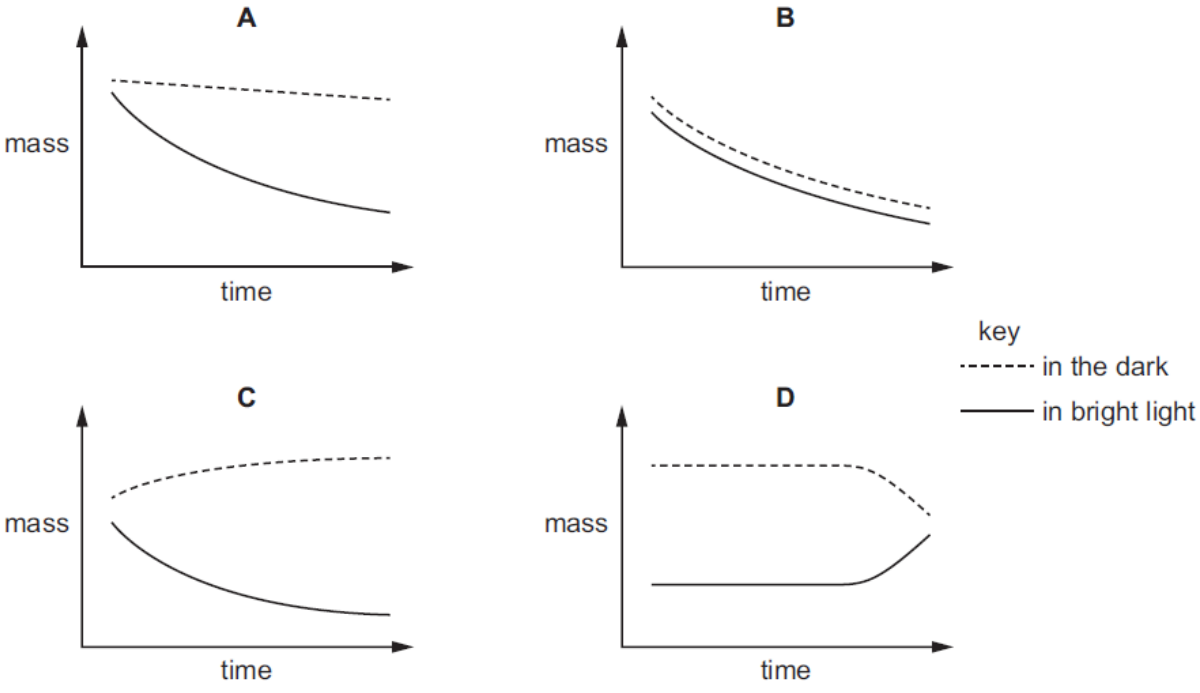
A student set up an experiment to investigate the rate of transpiration in a plant.



The student set up two identical sets of apparatus.

One was placed in a room at 20 °C with bright light and one in a room at 20 °C in the dark.

Which graph shows the student's results?



5. June/2022/Paper_12/No.13

What is the main cause of water moving up to the leaves in xylem vessels?

A active transport

B evaporation from the epidermis of the leaf

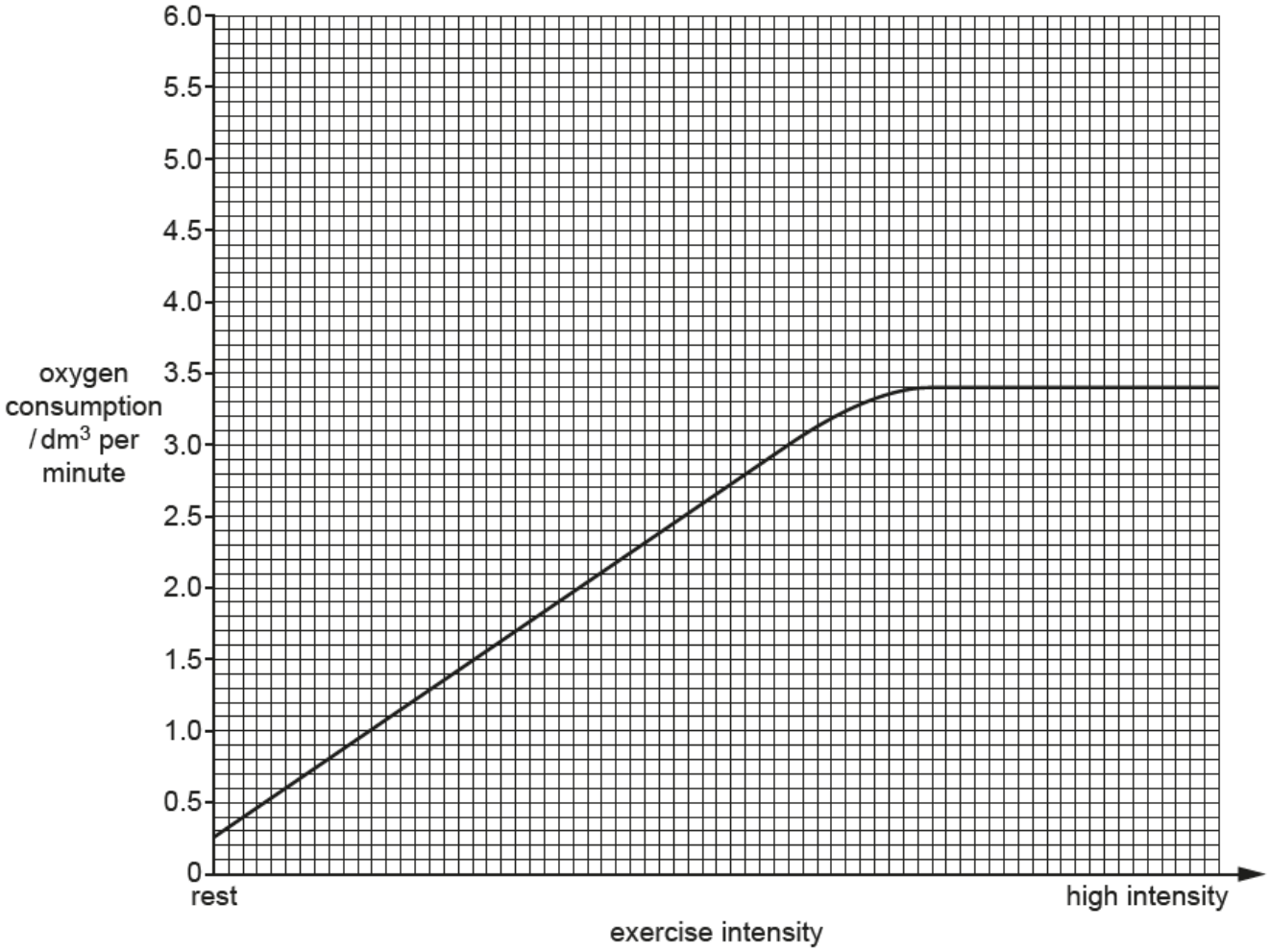
C evaporation from the walls of the mesophyll cells

D use of water in photosynthesis

6. June/2022/Paper_21/No.2(b)

(b) The man measures how much oxygen his body uses (his oxygen consumption) at different intensities of exercise, from rest to high intensity.

His results are shown in the graph.



(i) State the name of the chemical process that uses oxygen to release energy in the muscles.

..... [2]

(ii) Use the graph to determine the maximum volume of oxygen the man consumes in one minute.

..... [1]

(iii) The graph shows that it is possible for the man to increase the intensity of his exercise beyond the point at which he has reached his maximum oxygen consumption.
He can only do this for a short period of time.

Explain why.

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..... [3]

(iv) After four weeks of fitness training the man measures his oxygen consumption again.

On the graph, sketch a line to show the expected results of successful fitness training. [2]

7. June/2022/Paper_22/No.5(b)

(b) Describe the process of transpiration in the leaf of a plant.

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..... [3]