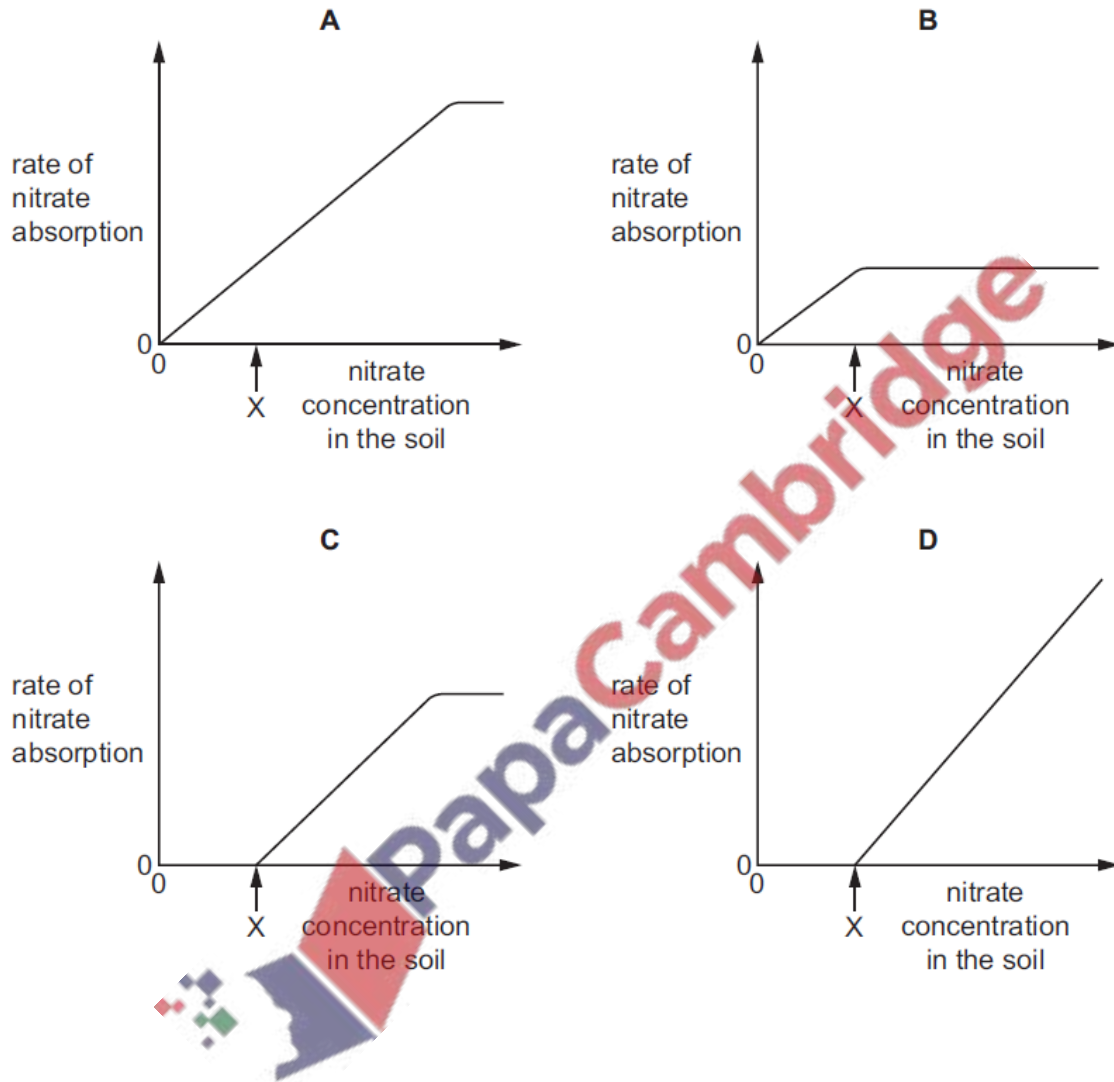


1. June/2022/Paper_11/No.4

The rate of nitrate ion absorption by a root hair cell was measured at different soil nitrate concentrations.

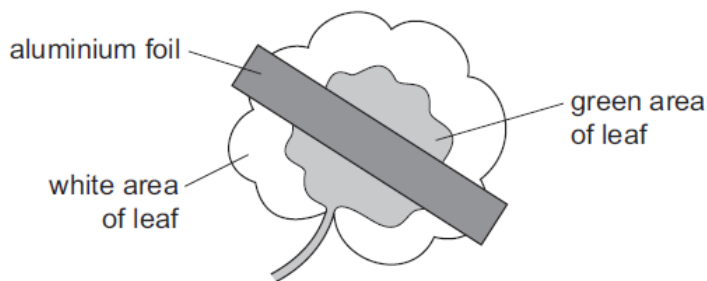
At X, the concentration of nitrate in the soil is the same as in the cell.

Which graph shows how the rate of absorption varies with nitrate concentration in the soil?

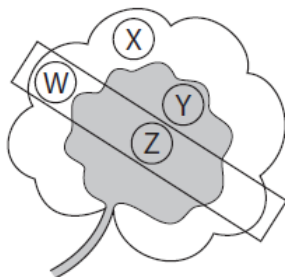


2. June/2022/Paper_11/No.7

A plant has leaves with both green and white areas. One of its leaves is partly covered with aluminium foil which blocks light.



The plant is then placed under a lamp for 24 hours. After this time, discs are cut from the areas of the leaf shown, and tested with iodine solution.







Which leaf discs will give a blue-black colour when tested with iodine solution?

- A W and X B X only C Y and Z D Y only

3. June/2022/Paper_11/No.8

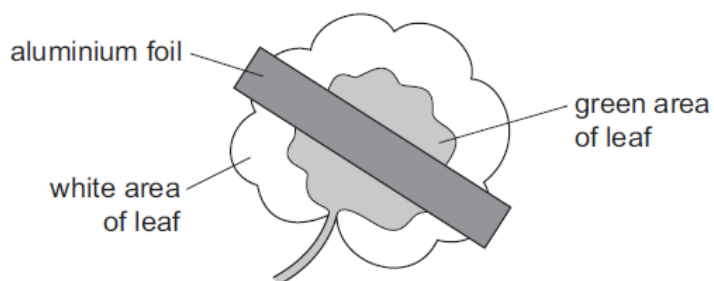
A gardener grows tomato plants in pots. To begin with, the plants produce green leaves and grow quickly. Then, after a few weeks, the leaves turn yellow.

Which type of water can the gardener use on the plants to make the leaves turn green again?

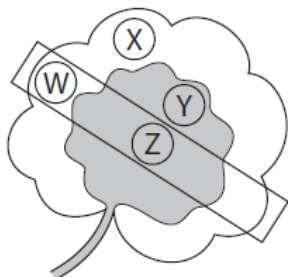
- A  water with fertiliser containing magnesium
- B  distilled water
- C  rainwater
- D  water with fertiliser containing nitrate

4. **June/2022/Paper_12/No.7**

A plant has leaves with both green and white areas. One of its leaves is partly covered with aluminium foil which blocks light.

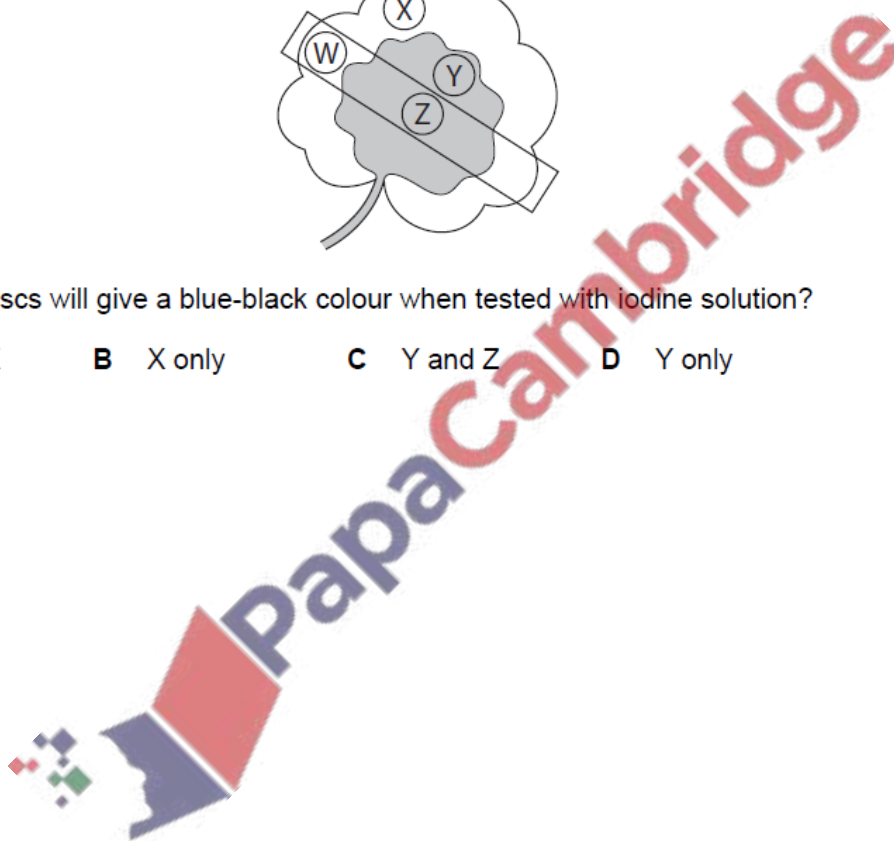


The plant is then placed under a lamp for 24 hours. After this time, discs are cut from the areas of the leaf shown, and tested with iodine solution.



Which leaf discs will give a blue-black colour when tested with iodine solution?

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



5. **June/2022/Paper_12/No.8**

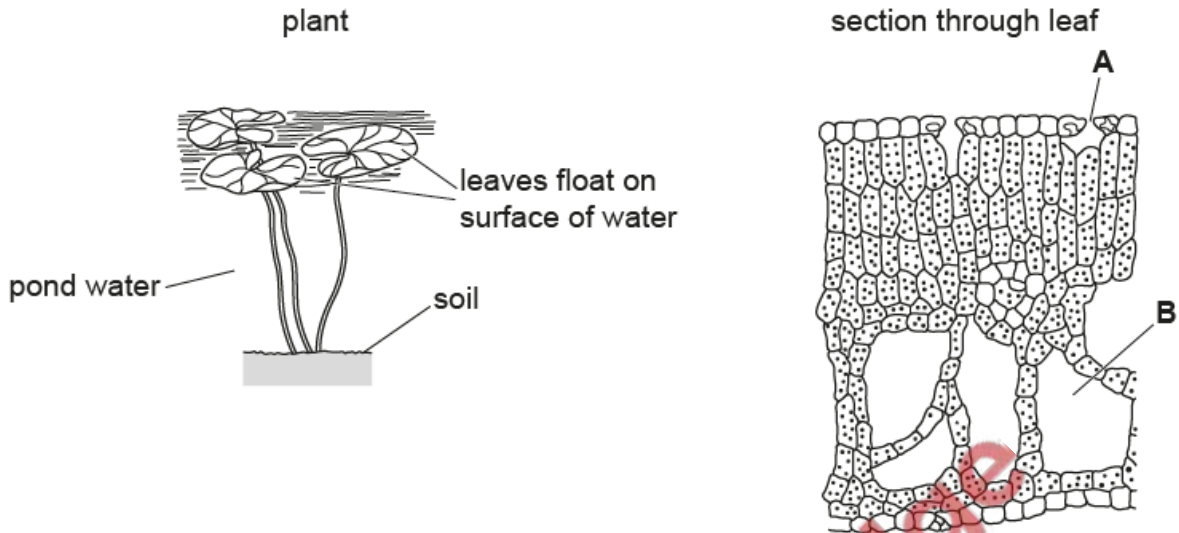
Which row shows the effect of nitrate ions on plant growth and the reason for this effect?

	effect of nitrate ions on plant growth	reason for effect
A	no effect	fewer proteins made
B	increases	less chlorophyll made
C	decreases	more chlorophyll made
D	increases	more proteins made

6. June/2022/Paper_21/No.5(a_b)

A plant species lives in ponds.

The diagrams show the whole plant and a section through one of its leaves.



(a) The leaves are adapted to float on the surface of the water.

(i) Suggest **one** advantage to the plant of the leaves floating on the surface of water.

.....
..... [1]

(ii) Name the parts of the leaf labelled A and B.

A

B

[2]

(iii) With reference to parts A and B, describe and explain how the structure of the leaf is adapted to a pond environment.

.....
.....
.....
..... [3]

(b) The plant is part of a food web in a pond.

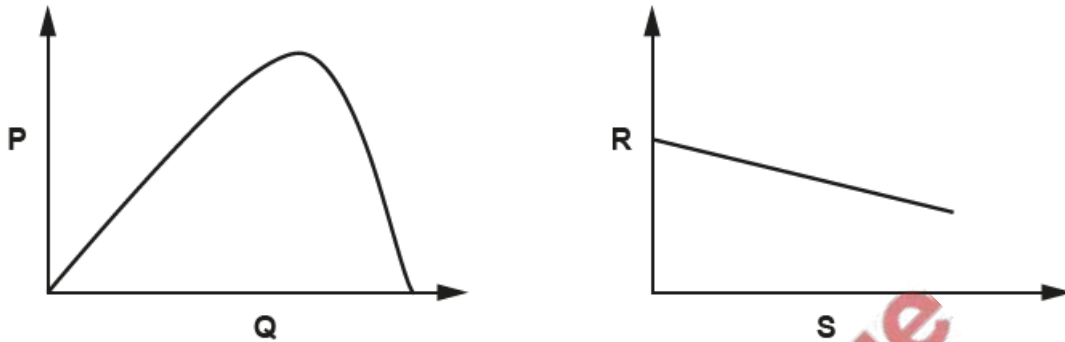
State its trophic level.

..... [1]

(a) Biological processes in plants are affected by environmental factors.

The graphs each show the effect of changing one environmental factor on a biological process.

The labels on the axes for each graph have been replaced with the letters P, Q, R and S.



Identify the correct axis label for each of P, Q, R and S.

Select from the following possible labels.

temperature

carbon dioxide concentration

rate of transpiration

light intensity

rate of photosynthesis

air humidity

- P
- Q
- R
- S

[4]