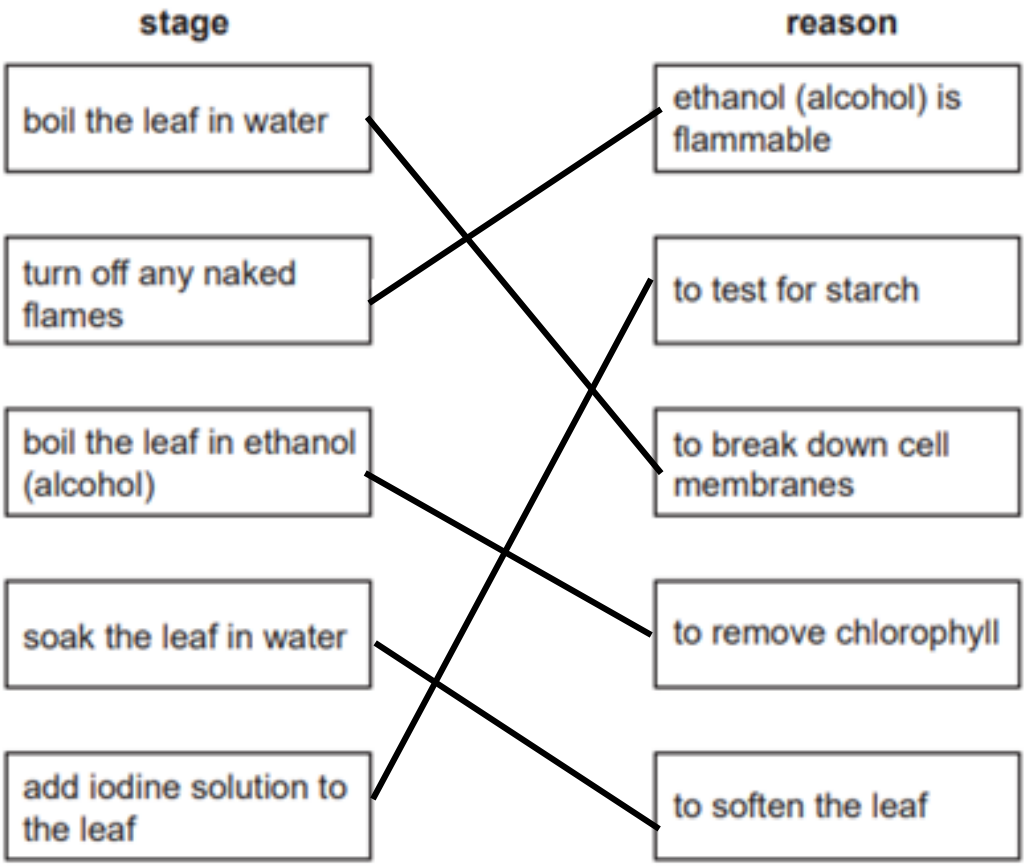
Question One :

a. The stages involved in testing a leaf for starch are shown below.
The stages are in the correct sequence, but the reasons are in the wrong order.
Use straight lines to match the stages with the correct reasons.



[5 marks]

b. Explain why chlorophyll is removed from the leaf before testing it for starch .

to observe any change in colour when iodine is added

[1 mark]

c. State two factors other than carbon dioxide , that plants would need in order to photosynthesise :

1. chlorophyll

2. light

You can also write water

[2 marks]

d. Explain why the plants were destarched .

to remove all the starch made by the plants before doing the experiment .

[1 mark]

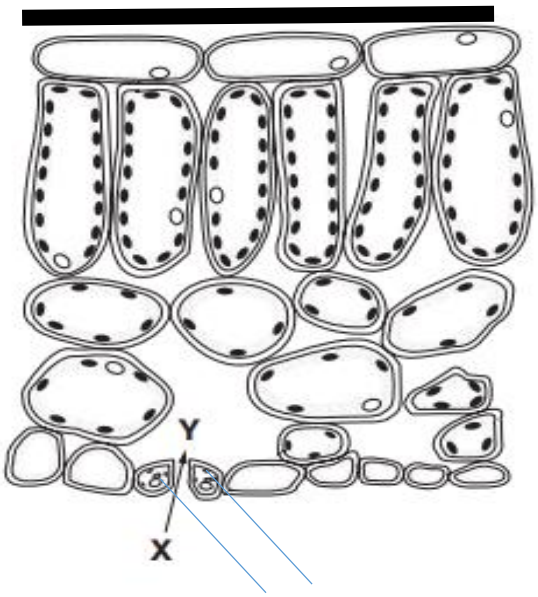
Question Two :

The diagram shows a section through a leaf

Waxy cuticle

Upper epidermis

Spongy mesophyll



Guard cells

a. By which process does carbon dioxide pass from X to Y

……diffusion …

[1 mark]

b. On the diagram label the following parts :
   1. Guard cells
   2. Spongy mesophyll
   3. Upper epidermis

[3 marks]

c. Draw the waxy cuticle **<u>on the diagram</u>** and explain what is its function in plants .

……function: prevents water loss ……

[2 marks]

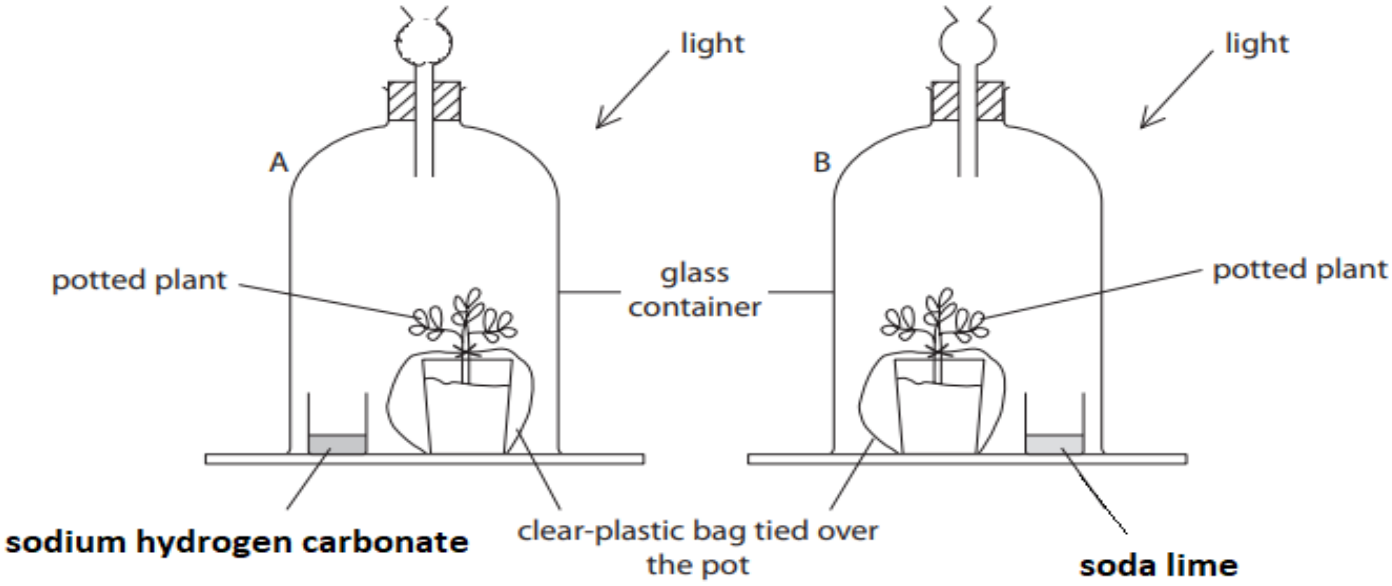
<u>Question Three :</u>

a. Complete the word equation of photosynthesis .

Carbon dioxide + water $\xrightarrow[\text{Chlorophyll}]{\text{Light}}$ glucose + oxygen

[2 marks]

b. An experiment is set up to find out if carbon dioxide is needed by plants for photosynthesis. Two plants were de-starched and then put in glass containers A and B as shown in the diagram.
After two days in the containers the plant leaves are tested for starch.



a. List two controlled variables .

Light intensity , amount of water , species of plant

[1 mark]

b. Write a fully focused research question that best fit the experiment .

What is the effect of the presence of carbon dioxide on glucose production in photosynthesis?

[1 mark]

c. Why is sodium hydrogen carbonate used in this experiment ?

……to release Carbon dioxide ……

[1 mark]