

| Name | Date | Total Marks | 30 |
|------|------|-------------|----|
|------|------|-------------|----|

**Q.1** Photosynthesis is a process that occurs in plant cells.  
State the type of energy required for photosynthesis.

..... [1]

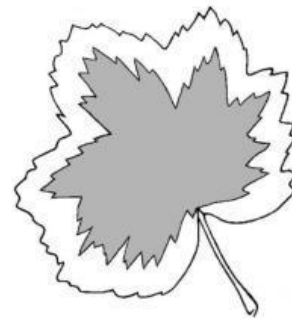
**Q.2** Low concentration of carbon dioxide in the air may restrict the rate of photosynthesis in plants. State **one** other feature in the environment that may also restrict the rate of photosynthesis.

..... [1]

**Q.3** The photograph shows a variegated leaf. A variegated leaf has **green parts** that [2]

contain **chlorophyll** and **white parts** that do **not** contain chlorophyll.

The plant was placed in a **warm, sunny location** for several days. After this, one leaf was removed and tested for the presence of **starch**.



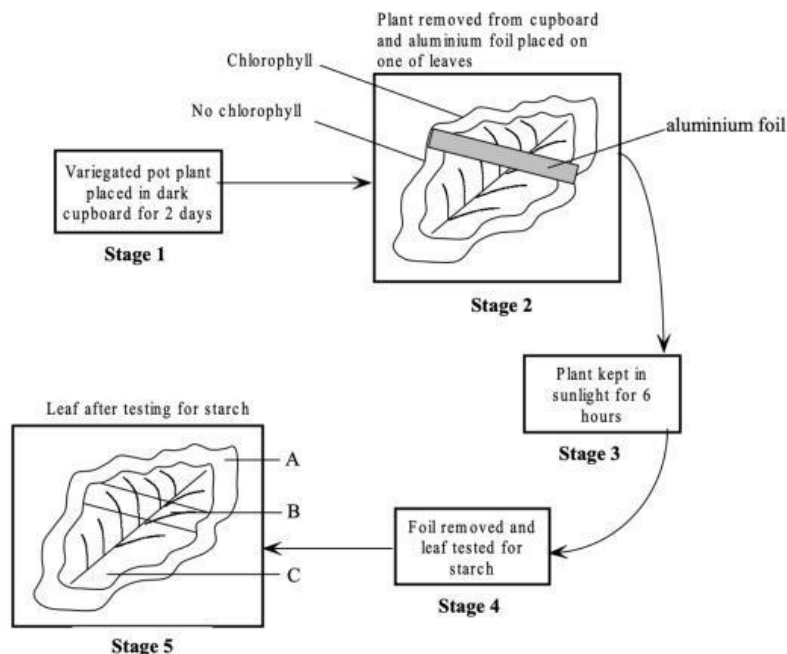
**Predict the results of the starch test by placing a tick (✓) in the correct column of the table below.**

| Part of the leaf | Starch absent            | Starch present           |
|------------------|--------------------------|--------------------------|
| Green            | <input type="checkbox"/> | <input type="checkbox"/> |
| White            | <input type="checkbox"/> | <input type="checkbox"/> |

**Q.4** Complete the sentences. [4]

- The ..... contains chlorophyll.
- ..... absorbs light energy needed for photosynthesis.
- Palisade mesophyll cells contain many ..... because they are the main site of photosynthesis.
- Without ..... a plant cannot absorb enough light energy to make food.

Q.5 A student carried out an experiment to find out if plants need light to make starch. The diagram shows what the student did.



a) At Stage 5, some parts of the leaf tested positive for starch. Which labelled area (A, B or C) contains starch?

Answer: ..... [1]

(b) Explain why starch is present in this area. [2]

.....

.....

c) One part of the leaf did **not** produce starch because it was covered with aluminium foil.

Identify the labelled area.

Answer: ..... [1]

d) The investigation tests two requirements for photosynthesis.

State these two requirements. [2]

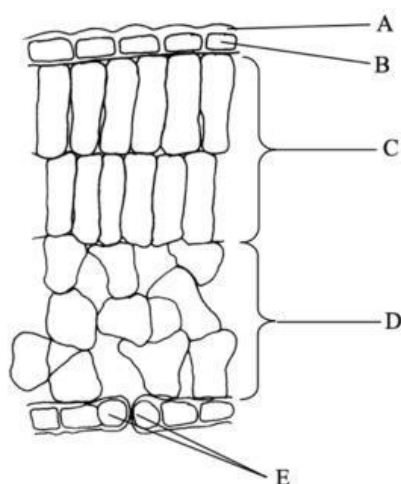
1. ....

.....

2. ....

.....

**Q.6** The diagram shows a section through a small part of a leaf. Label the diagram and answer the following questions. [5]



A .....

B .....

C .....

D .....

E .....

a) Where most photosynthesis takes place? [1]

.....

b) Forms a waterproof layer to the leaf? [1]

.....

c) Controls the entry of carbon dioxide into the leaf? [1]

.....

d) One of the products of photosynthesis is sugar. In which tissue is sugar transported. [1]

.....

e) Suggest why layer D contains fewer chloroplasts. [1]

.....

Q.7 A student investigates how the carbon dioxide concentration affects the rate of photosynthesis. Identify the following variables. [3]

a) Independent variable

.....

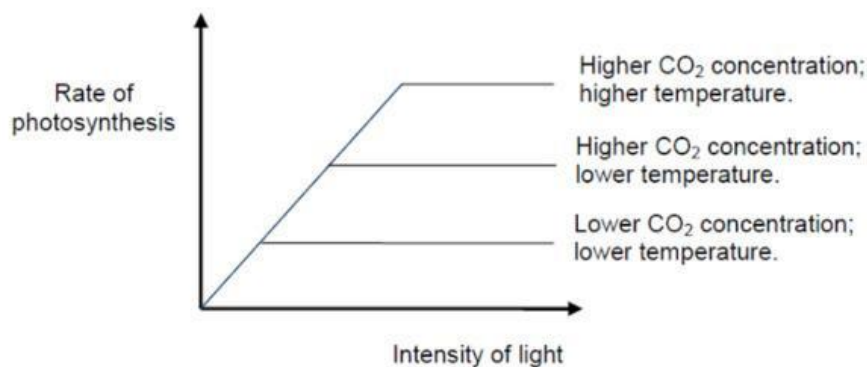
b) Dependent variable

.....

c) State one variable that should be kept constant to ensure a fair test.

.....

Q8 Use information from the graph to answer the questions. [2]



a) Identify one factor that is limiting photosynthesis in the lowest curve.

.....

b) Suggest one additional factor, not shown on the graph, that could also limit photosynthesis.

.....

Q.9 State the name of the process that occurs in the presence of chlorophyll. [1]

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