

Photosynthesis – A2 9700 Biology Nov 2022

1. Nov/2022/Paper_41/No.2

Photosynthesis is an important energy transfer process.

(a) Name **one** chloroplast pigment.

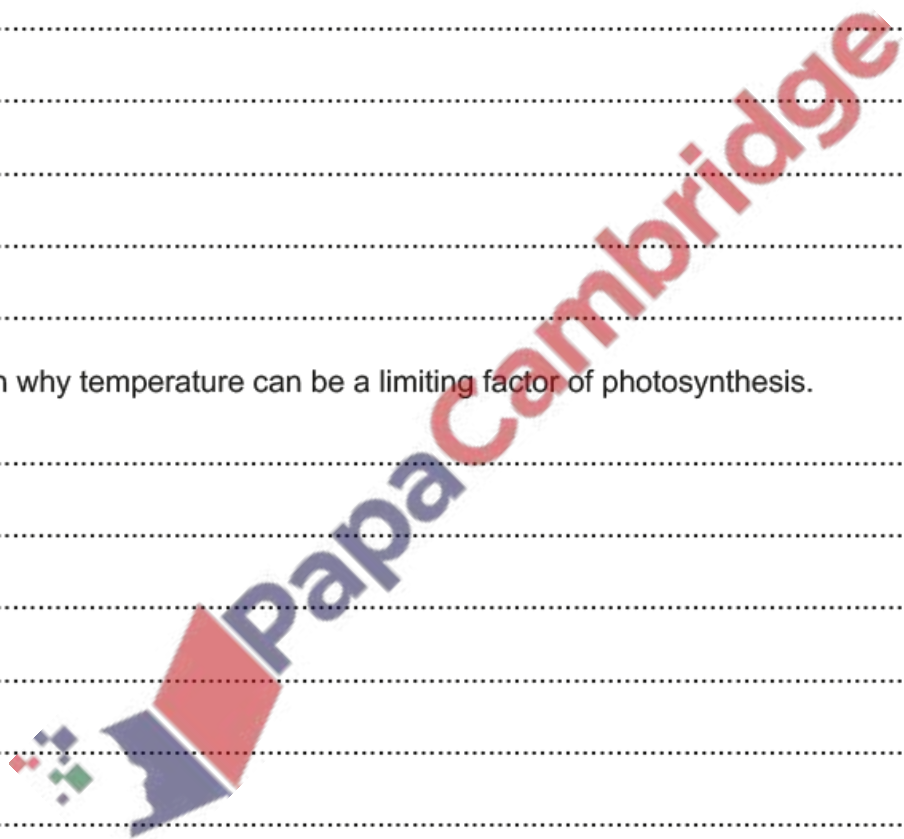
.....
..... [1]

(b) Explain the relationship between the **absorption** spectrum of the main chloroplast pigments in a species of plant and the **action** spectrum for photosynthesis for that species.

.....
.....
.....
.....
.....
.....
.....
..... [2]

(c) Explain why temperature can be a limiting factor of photosynthesis.

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



(d) Outline how the light-independent stage of photosynthesis leads to the production of carbohydrates such as starch in plant leaves.

.....

.....

.....

.....

.....

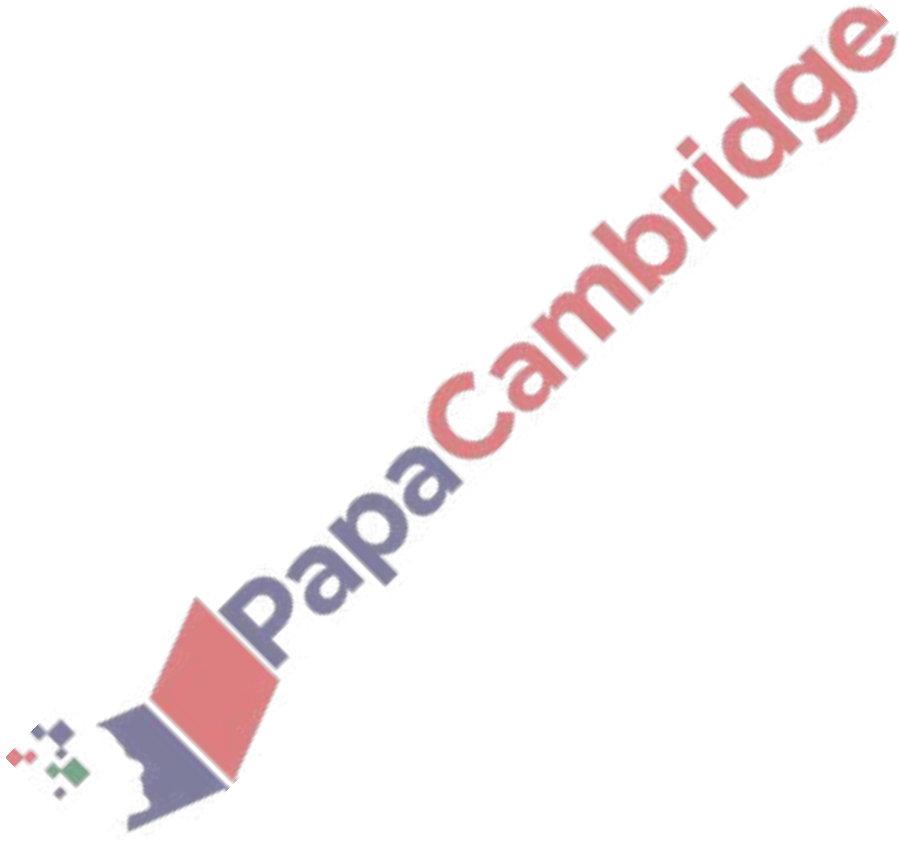
.....

.....

.....

[3]

[Total: 9]



(a) Photosynthesis is an energy transfer process that takes place in chloroplasts of plant cells.

(i) Fig. 3.1 shows a diagram of a chloroplast.

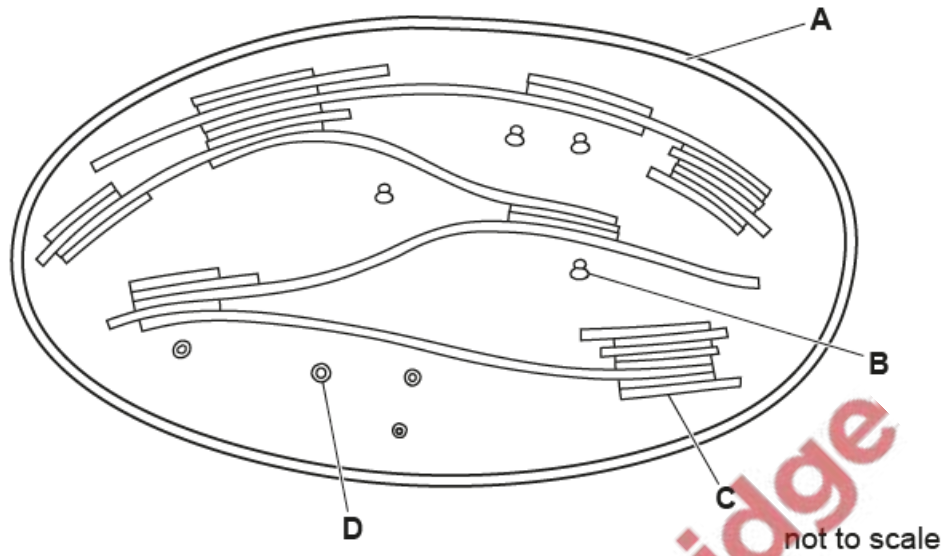


Fig. 3.1

Using the letters **A**, **B**, **C** or **D**, identify the structure that:

- contains genes that code for some of the enzymes used in photosynthesis

.....

- is the site of synthesis of some of the enzymes used in photosynthesis.

.....

[2]



(ii) Discuss how the results in Fig. 3.2 support that chemiosmosis occurs during photophosphorylation.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

[3]

[Total: 12]

