

1. Nov/2018/Paper_41/No.7

(a) Fig. 7.1 is a transmission electron micrograph of a chloroplast.

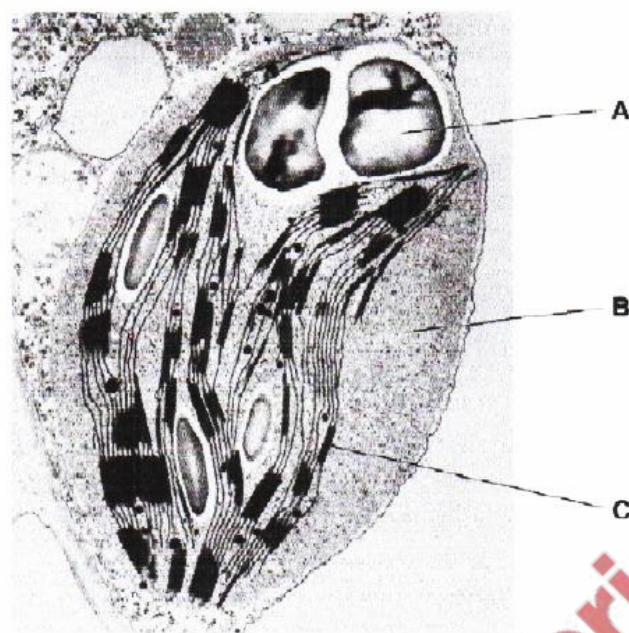


Fig. 7.1

Many compounds and structures involved in photosynthesis are located in a chloroplast.

Using the labels **A**, **B** or **C**, complete Table 7.1 to show the location of four of these compounds or structures.

You may use each of the letters **A**, **B** and **C** once, more than once, or not at all.

Table 7.1

compound or structure	location
ATP synthase	C
rubisco	B
starch grain	A
phospholipid bilayer	C

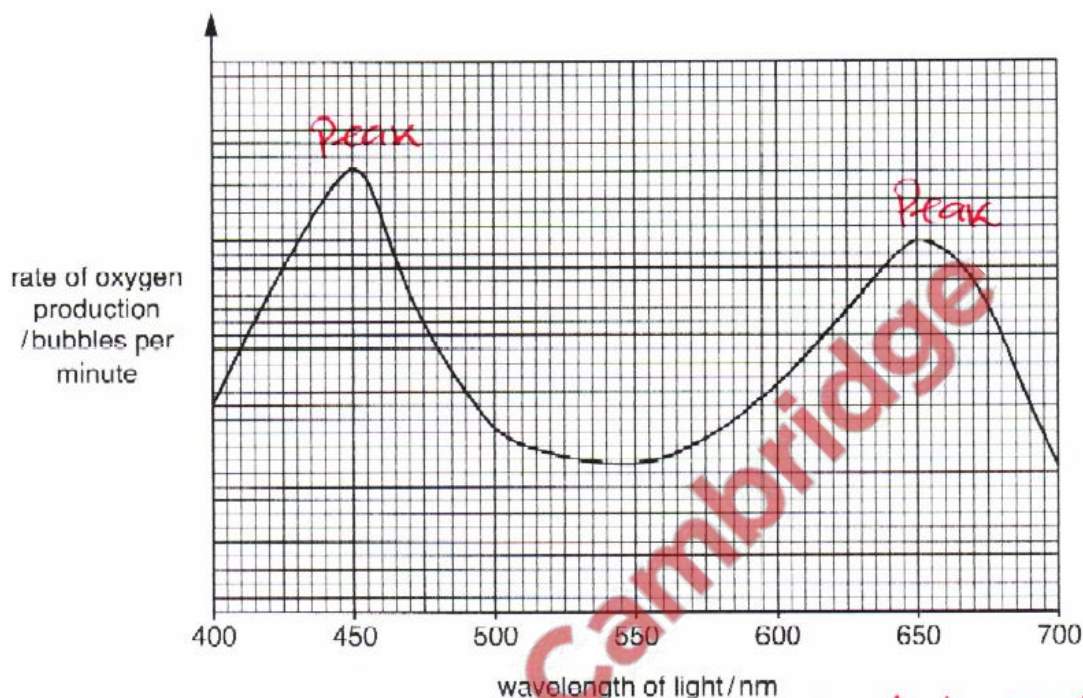
[3]

(b) *Elodea canadensis* is an aquatic plant that lives submerged in freshwater.

Equal-sized plants of *E. canadensis* were exposed to different wavelengths of light for the same period of time. As each plant photosynthesised, the number of bubbles of oxygen leaving the plant was counted.

For each wavelength, the rate of oxygen production was calculated.

The results are shown in Fig. 7.2.



Rate of oxygen evolution corresponds to rate of photosynthesis.

Fig. 7.2

Describe and explain the results shown in Fig. 7.2.

Peaks for rate of oxygen production occur at 450 nm and 650 nm which correspond to blue and red regions of visible light. These are the wavelengths used for photosynthesis. This ensures more oxygen is released during photosynthesis.

[3]

- (c) Chlorophyll b, carotene and xanthophyll are known as accessory pigments. Describe the role of the accessory pigments in photosynthesis.

They pass light to chlorophyll a and primary pigments. They absorb ^{light of} different wavelengths and then pass it to reaction center

[2]

[Total: 8]

