

AQA, OCR, Edexcel

A Level

A Level Biology

Photosynthesis 2 Questions

Name:

M M E

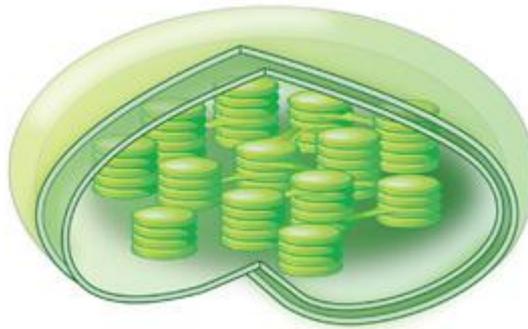
Mathsmadeeasy.co.uk

Total Marks: /27

Photosynthesis

1. The site of photosynthesis is in the chloroplasts.

- a) i) Use the diagram of the chloroplast below to identify where the light independent and light dependent reactions take place. (2 marks)



b) The thylakoids contain photosystems which is where photosynthesis begins. Photosystems are made up of pigment molecules and proteins.

- i) Identify 2 pigment molecules found in the photosystems in chloroplasts. (2 marks)
- ii) What is the function of a photosystem and how do photosystems I and II differ? (2 marks)
- iii) What is the advantage of having different pigments in the photosystems. (1 mark)

2. The light-dependent reaction is the first stage of photosynthesis.

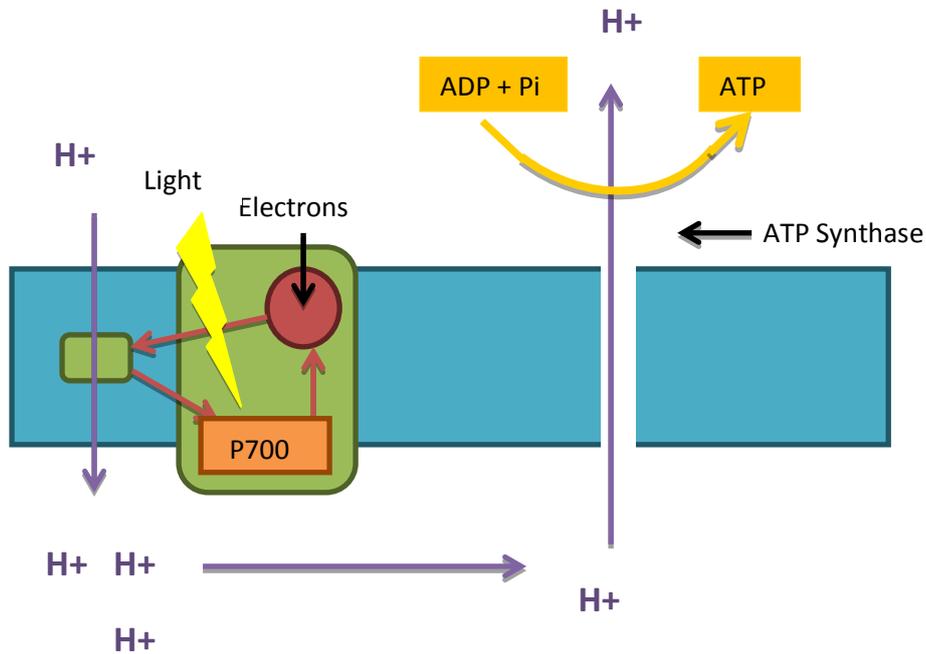
a) The light-dependent reaction is split up into two different reactions, cyclic photophosphorylation and non-cyclic photophosphorylation.

- i) What are the products of these two reactions? (2 marks)
- ii) What happens to the electrons when light energy reaches the primary pigment? (2 marks)
- iii) ATP is synthesised in the light dependent reaction through photophosphorylation. Explain why the series of redox reactions that take place during photophosphorylation are needed to produce ATP? (3 marks)

iv) What is meant by the term photolysis? (1 mark)

3. The cyclic and non-cyclic photophosphorylation reactions make up the rest of the first stage of photosynthesis.

a) i) Using the diagram below, explain what happens to the electrons in cyclic phosphorylation. (2 marks)



b) Photophosphorylation involves an '**electron transport chain**'.

i) What is meant by this phrase? (1 mark)

ii) Explain how the electron transport chain produces ATP? (6 marks)

iii) Why is the photolysis of water essential in photosynthesis? (2 marks)