Photosynthesis

Question Paper

Level	International A Level
Subject	Biology
Exam Board	Edexcel
Topic	Energy Flow , Ecosystem and Environment
Sub-Topic	Photosynthesis
Booklet	Question paper

Time Allowed: 41 minutes

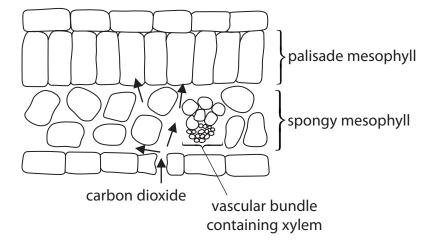
Score: /34

Percentage: /100

Grade Boundaries:

A*	А	В	С	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

The diagram below shows some of the tissues in a leaf.



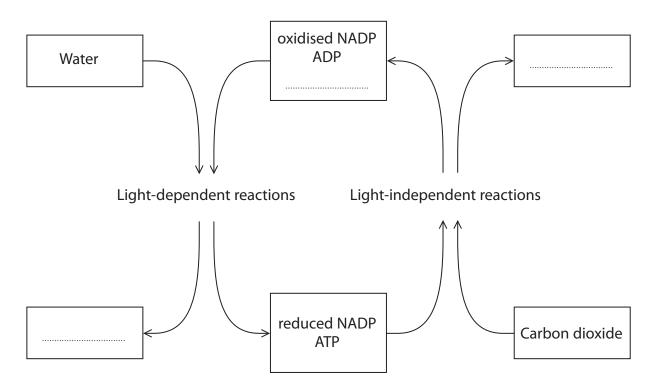
(a)	State what is meant by the term tissue .	(1)
(b)	Spongy mesophyll is a site of gas exchange. The arrows on the diagram show the direction of movement of carbon dioxide during the day.	
	Using the information in the diagram and your own knowledge of the properties of gas exchange surfaces, suggest how spongy mesophyll is adapted for gas	
	exchange.	(4)

(C) Photosynthesis takes place in palisade mesophyll.	
	Describe what happens to the carbon dioxide that enters this tissue.	
		(4)
,		
10	1) Vulom transports ions and water molecules to the leaf	
(C	d) Xylem transports ions and water molecules to the leaf.	
(C	d) Xylem transports ions and water molecules to the leaf. Describe the roles of these ions and water molecules in photosynthesis.	(2)
(C		(3)
	Describe the roles of these ions and water molecules in photosynthesis.	
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2 The diagram below shows some of the steps involved in photosynthesis.



(a) Complete the diagram by writing the correct word or words on the dotted lines.

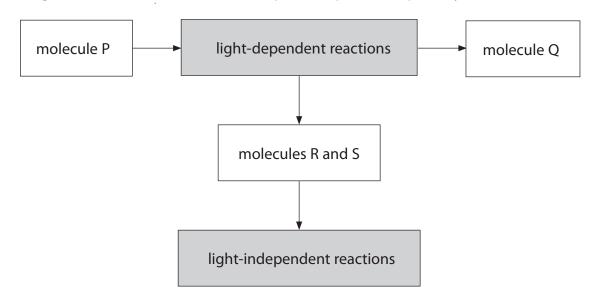
(3)

*(b) Describe the roles of the thylakoid membranes in the production of ATP in the light-dependent reaction.					
ng noposition	(6)				
(Total for Question 2 = 9 ma	arks)				

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3 (a) The diagram below shows some of the steps in the process of photosynthesis.



				_					
(i١	Nama	molecules	D	and (ni 🕜	tha	diadram	١.
١	1/	INGILIC	IIIOIECUIES		and V	~ !!!	uic	diagram	Ι.

(1)

molecule P

molecule Q

(ii) Place a cross \boxtimes in the box next to the names of molecules **R** and **S** in the diagram.

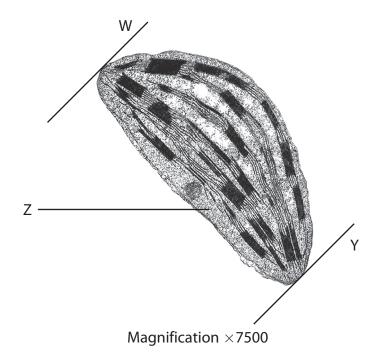
(1)

- A ADP and oxidised NADP
- **B** ADP and reduced NADP
- ☑ C ATP and oxidised NADP
- D ATP and reduced NADP

(iii) Describe the role of RUBISCO in the production of GALP in the light-independent reaction.

(4)

(b) The electronmicrograph below shows a chloroplast.



(i) Place a cross \boxtimes in the box next to the name of the part labelled **Z**.

(1)

- A cytoplasm
- **B** matrix
- C stroma
- D thylakoid

(11)	The equation below can be used to calculate the magnification of this chlorop	olast.
	magnification = image length \div actual length	
	Use this equation to calculate the actual length of this chloroplast, between the lines labelled ${\bf W}$ and ${\bf Y}$.	
	Show your working.	(3)
		(3)
	length of chloroplast =	
(iii	Describe how the membranes inside the chloroplast are involved in photosynthesis.	
	p.no.cosyntaneo.o.	(3)