

Photosynthesis & Plants for Food

31 min

33 marks

Q1-L4, Q2-L5, Q3-L5, Q4-L6, Q5-L6

- | | | | | |
|----|-----|------|---|---|
| 1. | (a) | (i) | any one from | 1 |
| | | | <ul style="list-style-type: none"> • to make food or glucose or sugar or starch • photosynthesis <i>accept 'for growth'</i> | |
| | | (ii) | any one from | 1 |
| | | | <ul style="list-style-type: none"> • there is not enough light <i>accept 'no light' or 'no Sun'</i> • there is less light <i>accept 'light cannot reach them'</i> <p><i>do not accept 'because plants need light'</i></p> | |
| | (b) | | any two from | 2 |
| | | | <ul style="list-style-type: none"> • oxygen • water • minerals or nutrients <i>accept a named mineral such as 'nitrate'</i> <p><i>accept for two marks two named minerals such as 'nitrates' and 'phosphates'</i></p> | |
| | (c) | B ✓ | <i>if more than one box is ticked, award no mark</i> | 1 |
- [5]**
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|----|-----|-----------------------------|---|
| 2. | (a) | oxygen | 1 |
| | (b) | carbon dioxide | <i>do not accept light</i> |
| | | water | <i>do not accept chlorophyll</i> |
| | (c) | D | <i>if more than one letter is given</i> |
| | | | <i>award no mark</i> |
| | (d) | (i) chlorophyll | 1 |
| | | (ii) blue ✓ or red ✓ | <i>if blue and red are both ticked award the mark, but if green is ticked award no mark</i> |

(e)	any two from		2
	<ul style="list-style-type: none"> • as an energy source or for respiration 	<i>accept 'for energy' or 'for food'</i>	
	<ul style="list-style-type: none"> • to make starch 	<i>accept 'for growth' or 'as a starting</i>	
	<ul style="list-style-type: none"> • to make cellulose 	<i>material for other compounds'</i>	
			[8]
3.	(a)	by filtration or she filtered it	1
			<i>accept 'let it settle then pour off the liquid' or 'decant'</i>
	(b)	any one from	1
		<ul style="list-style-type: none"> • as a control 	<i>do not accept 'to make it a fair test'</i>
		<ul style="list-style-type: none"> • to show that the dissolved substances affect the growth of the plant 	<i>do not accept 'to see if it grows in</i>
		<ul style="list-style-type: none"> • to see if they grow differently 	<i>distilled water'</i>
		<ul style="list-style-type: none"> • to see if they grow normally or well without the dissolved substances 	<i>do not accept 'to see if it grows normally without soil particles'</i>
	(c)	(i)	1
		mineral salts or minerals or salts or nutrients	<i>accept 'nitrates' or 'phosphates' do not accept 'fertiliser'</i>
		(ii)	1
		any one from	<i>accept 'they are long'</i>
		<ul style="list-style-type: none"> • they are spread out 	<i>accept 'they are branched'</i>
		<ul style="list-style-type: none"> • they are branched 	<i>accept 'they have a large surface area'</i>
		<ul style="list-style-type: none"> • they have a large surface area 	<i>accept 'they have root hairs'</i>
		<ul style="list-style-type: none"> • they have root hairs 	<i>accept 'they are permeable'</i>
			<i>do not accept 'they can take in water'</i>
	(d)	the leaves need light for photosynthesis	1
			<i>accept 'photosynthesis takes place in the leaves' or 'plants need light for photosynthesis'</i>
			<i>do not accept 'the leaves need light'</i>
			[5]
4.	(a)	answers may be in either order	
		cell wall	1
		chloroplast	<i>accept 'starch grains'</i>
	(b)	(i)	1
		photosynthesis	<i>accept 'it gets less' or 'they are used up'</i>
		(ii)	1
		it decreases	<i>do not accept 'they die out'</i>

- (c) glucose *accept 'sugar'* 1
 any **one** from 1
 • for energy
 • for respiration

[6]

5. (a) glucose *accept 'sugar' or 'carbohydrate'* 1
 (b) (i) to absorb enough **or** more light *accept 'to absorb as much light as possible'* 1
accept 'to absorb lots of light'
accept 'more photosynthesis takes place'
 (ii) chloroplasts *accept 'chlorophyll'* 1

- (c) (i) 4

<i>part</i>	<i>letter of part</i>
<i>cell wall</i>	D
<i>cytoplasm</i>	F
<i>nucleus</i>	A
<i>vacuole</i>	C

- (ii) any **two** from 2
 • A
 • E
 • F

[9]