

Question	Answers	Extra information	Mark	AO / Specification reference
01.1	to compare with no petroleum jelly		1	AO2 4.2.3.2
01.2	balance	do not accept scales	1	AO2 4.2.3.2
01.3	$2.8 - 0.7 = 2.1$ g		1	AO2 MS3a 4.2.3.2
01.4	more water is lost from the lower surface than the upper surface water is lost from both surfaces		1 1	AO3 4.2.3.2
01.5	(more) stomata are found on the lower surface		1	AO3 4.2.3.2
02.1	plant leaf / flower spongy mesophyll		1 1 1	AO2 4.2.3.1
02.2	meristem tissue – contains rapidly dividing cells for growth xylem – transports water around the plant phloem – carries dissolved food around the plant	one mark for one or two correct two marks for all correct	2	AO1 4.2.3.1
02.3	chloroplasts		1	AO1 4.2.3.1

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02.4	it contains different types of tissues (working together) / named tissues		1	AO2 4.2.3.1
03.1	palisade mesophyll		1	AO2 4.2.3.2
03.2	contains chloroplasts		1	AO1 4.1.1.3 4.2.3.2
03.3	osmosis from a region of high water potential to a region of lower water potential		1 1	AO1 4.1.3.2 4.2.3.2
03.4	Level 3: all three layers described		5–6	AO1 4.1.1.3 4.2.3
	Level 2: two layers described		3–4	
	Level 1: one layer described		1–2	
	No Relevant content		0	

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	<p>Indicative content</p> <p>Any six from:</p> <p>Top of leaf:</p> <ul style="list-style-type: none"> • (tightly packed) palisade cells • contain many chloroplasts for photosynthesis • upper cells protected by epidermis • waxy surface reduces water loss from upper surface <p>Middle of leaf:</p> <ul style="list-style-type: none"> • spongy mesophyll cells • have large air spaces / surface area to maximise gas exchange • xylem supplies water for photosynthesis • phloem transports dissolved sugars from photosynthesis to plant <p>Lower part of leaf:</p> <ul style="list-style-type: none"> • stomata open and close through action of guard cells • let carbon dioxide diffuse in • allow oxygen / water vapour to diffuse out 			
05.1	sugars		1	AO1 4.2.3.2

Question	Answers			Extra information	Mark	AO / Specification reference
05.2	Feature	Found in xylem	Found in phloem	one mark for each correct row	4	AO1 4.2.3.2
	living cells		✓			
	sieve plates		✓			
	walls containing lignin	✓				
	supported by companion cells		✓			
05.3	translocation				1	AO1 4.2.3.2
06.1	from top:				1	AO2 4.2.3.1
	upper epidermis				1	
	palisade mesophyll				1	
	spongy mesophyll				1	
06.2	lower epidermis				1	AO1 4.2.3.1
	carries out most photosynthesis in the leaf: palisade mesophyll				1	
	contains the stomata: lower epidermis				1	
06.3	contains air spaces: spongy mesophyll				1	AO1 4.2.3.1
	stomata				1	

Question	Answers	Extra information	Mark	AO / Specification reference															
07.1	the rate of water loss from the leaves of a plant		1	AO1 4.2.3.2															
07.2	potometer		1	AO1 4.2.3.2															
07.3	<table border="1"> <thead> <tr> <th>Factor change</th> <th>Increase</th> <th>Decrease</th> </tr> </thead> <tbody> <tr> <td>increase in temperature</td> <td>✓</td> <td></td> </tr> <tr> <td>increase in humidity</td> <td></td> <td>✓</td> </tr> <tr> <td>increase in air speed</td> <td>✓</td> <td></td> </tr> <tr> <td>greater light intensity</td> <td>✓</td> <td></td> </tr> </tbody> </table>	Factor change	Increase	Decrease	increase in temperature	✓		increase in humidity		✓	increase in air speed	✓		greater light intensity	✓		one mark for each correct row	4	AO1 4.2.3.2
Factor change	Increase	Decrease																	
increase in temperature	✓																		
increase in humidity		✓																	
increase in air speed	✓																		
greater light intensity	✓																		
08.1	<p>large surface area available – to speed up movement of water into cell by osmosis</p> <p>many mitochondria – to transfer energy needed for active transport into the cell</p>		1 1	AO1 4.2.3.2															
08.2	<p>(Process) Y</p> <p>active transport / concentration of mineral ions is usually lower in soil than in plant cells</p>	<p>one mark for name of process</p> <p>one mark for explanation</p>	1 1	AO2 4.2.3.2															
08.3	xylem		1	AO1 4.1.1.3 4.2.3.2															