OCR GCSE GATEWAY BIOLOGY A · J247

BIOLOGY



MARK SCHEME

M3 ALGEBRA

SCORE	PERCENTAGE
/19	%

STEMUP

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Question			Answer/Indicative content	Marks	Guidance
1		i	FIRST CHECK THE ANSWER ON ANSWER LINE If answer = 250 award 2 marks 25 x 30 / 3 OR 750 / 3 ✓ = 250 ✓	2 (AO2 x 2.2)	
		ii	Idea of less visible ORA ✓ otherwise they are more likely to be eaten ORA ✓	2 (AO2 x 2.2)	ALLOW spot not visible to predators = 2 marks ALLOW small spot is less likely to be toxic / poisonous If no other mark scored, credit less likely to be washed off
			Total	4	
2	a	i	water evaporates (on surface of spongy mesophyll) ✓ water (vapour) passes/diffuses through the stomata/pores ✓	2 (AO1.1)	Need evaporate or a description of the process
		ii	measure distance gas bubble moves ✓ over certain time / specified time ✓ vary distance of lamp from potometer ✓	3 (AO1.2)	ALLOW measure position of bubble before and after time taken for bubble to move a certain distance = 2 marks
		iii	absorbs heat/thermal energy (from lamp) / keeps (plants at) constant temperature ✓ heat/temperature would affect transpiration ✓	2 (AO2.2)	IGNORE references to photosynthesis
	b	i	FIRST CHECK THE ANSWER ON ANSWER LINE If answer = 57 (mm^3) award 3 marks $\pi \times 0.5^2 \times 72$ ✓ = 56.52 ✓ = 57 (mm^3) ✓	3 (AO3 x 2.2)	ALLOW one mark for an answer of 226.08 and 2 marks for an answer of 230 (1.0 has been used as r) ALLOW one mark for clear evidence of incorrect answer correctly rounded to two sig figs.

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Question			Answer/Indicative content	Marks	Guidance
		ii	42 (mm) / Trial 1 at 40cm ✓ reading taken too quickly after moving the lamp / error in measurement (distance bubble moved/time) / heat sink not in the way/radiating heat / change in room temp/air movements / potometer/light not at correct distance ✓	2 (AO2 x 2.2)	
		iii	Idea that they should remove/ignore the anomalous result (before processing) ✓	1 (AO1.2)	ALLOW repeat that reading
		iv	the mean is 73 mm ✓ the range of values is 71 to 75 / range is 4 mm / 2mm is half the range ✓	2 (AO2 x 1.2)	ALLOW adding or subtracting 2 from 73 covers all the readings this is the mean ± half the range = 2 marks
			Total	15	

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