Cambridge International AS & A Level

Cambridge Assessment International Education
Cambridge International Advanced Subsidiary and Advanced Level

BIOLOGY **9700/34**

Paper 3 Advanced Practical Skills 2 **October/November 2017**

MARK SCHEME

Maximum Mark: 40

Published

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Mark scheme abbreviations

;	separates marking points
/	alternative answers for the same point
R	reject
A	accept (for answers correctly cued by the question, or by extra guidance)
AW	alternative wording (where responses vary more than usual)
underline	actual word given must be used by candidate (grammatical variants accepted)
max	indicates the maximum number of marks that can be given
ora	or reverse argument
mp	marking point (with relevant number)
ecf	error carried forward
I	ignore
AVP	alternative valid point

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Question	Answer	Marks
1(a)(i)	every 1 minute or evenly spaced times **;**	**1**
1(a)(ii)	suitable volume between 10 and 50 **;**	**1**
1(a)(iii)	1 heading for independent variable (column to left of recorded data or top row) time **+** correct units **;** 2 heading for dependent variable colour or observation **;** 3 colours for all samples **;** 4 colours clearly described e.g. blue, blue green, green, yellow green, yellow **;** 5 0 recorded as blue **;** 6 two columns to show comparison between first 10 minutes and second 10 minutes **;**	**6**
1(a)(iv)	correct reference to time and colour for both trials **;** (compare) first 10 minutes with second 10 minutes, e.g. slower or faster or same **;**	**2**

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Question	Answer	Marks
1(b)(i)	five or more concentrations **;** made by simple dilution or serial dilution or described or named examples **;**	**2**
1(b)(ii)	compare unknown concentration time with known concentration times **or** draw a graph and read off **; R** colours	**1**
1(c)(i)	*x*-axis type of sugar **+** *y*-axis rate of metabolic reactions / au **;** scale on *x*-axis: even width of bars **+** scale on *y*-axis is 0.1au to 2 cm **+** labelled each 2 cm **;** correct plotting of bars in the order of the table **;** bars drawn with thin sharp ruled line vertical lines meeting horizontal lines **+** labelled **;**	**4**

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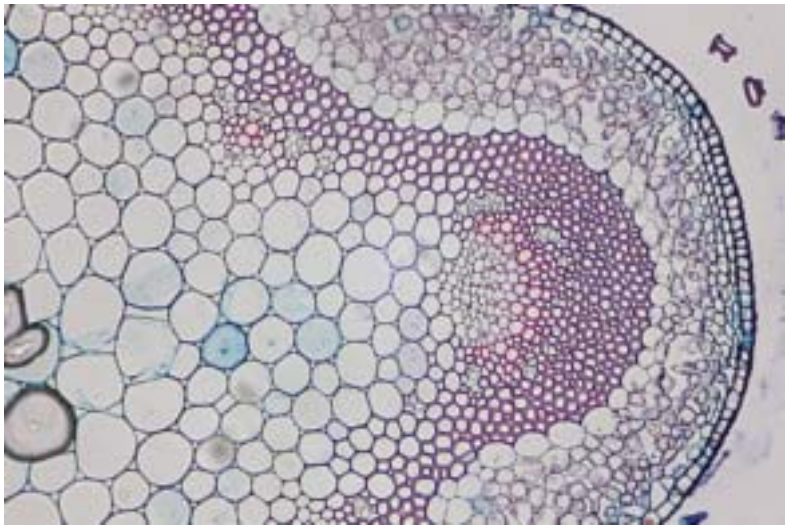
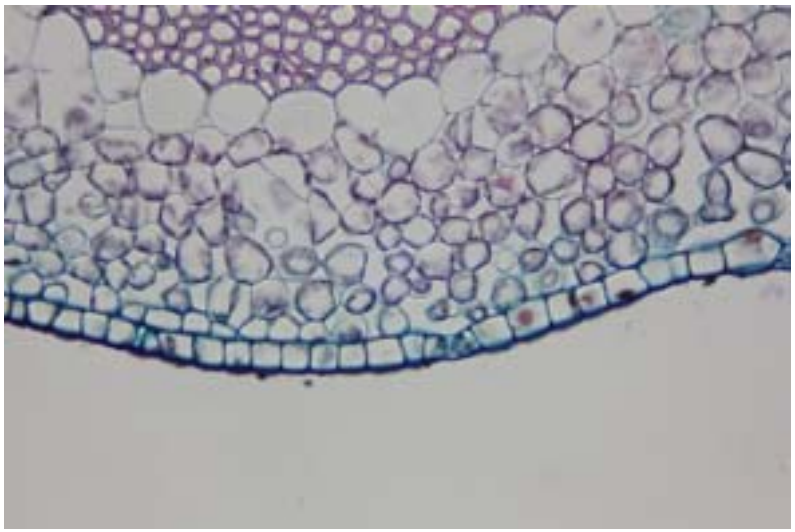
Question	Answer	Marks
1(c)(ii)	1 quicker in glucose than sucrose **;** 2 sucrose is a disaccharide and glucose is a monosaccharide **;** 3 sucrose needs breaking down (glucose does not) **;** 4 (into) glucose and fructose **;** 5 (metabolic reactions with) sucrose do not release as much CO_2 **;** 6 glucose can fit into the enzymes active site (sucrose / fructose cannot) **or** more enzyme substrate complexes **;** 7 more enzymes for metabolising glucose **;**	**4**

Question	Answer	Marks
2(a)(i)	1 minimum size + no shading + no cells **;** 2 drawn correct (bulge / curved) area **;** 3 draws tissues in vascular bundle correctly in the correct position **;** 4 draws bulge and correct shape of tissues **;** 5 label line and label to pith **;**	**5**
2(a)(ii)	1 size at least 40 mm across the largest cell at the widest point **+** quality of lines are continuous, thin and sharp **;** 2 draws only four cells **+** each cell touching at least two of the other cells **;** 3 two lines drawn around each cell **+** three lines where cells touch **;** 4 (epidermal cell) at least one cell with a convex surface **;** 5 identifies and draws correct cells, e.g. different shapes and sizes **;** 6 label line and label to cell wall **;**	**6**

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Question	Answer	Marks
2(b)(i)	1 correct measurements of root and vascular tissue using line **P**–**Q ;** 2 both measurements using same units **;** 3 larger number to smaller number **;** 4 to lowest common denominator **;**	**4**
2(b)(ii)	collects **only** observable differences **;** three correct differences **;;;**	**4**

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Question	Answer	Marks
		
	TS Plantain stem	
		

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