

MARK SCHEME for the May/June 2014 series

9700 BIOLOGY

9700/33

Paper 33 (Advanced Practical Skills 1), maximum raw mark 40

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This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.



Page 2	Mark Scheme	Syllabus	Paper
	GCE AS/A LEVEL – May/June 2014	9700	33

Mark scheme abbreviations:

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

 (a) (i) records volume of H as whole number (or to 0.5) + cm³; [(ii) records length of time as every 2 minutes, e.g. 2, 4, 6, 8 + 10 minutes; [(iii) source of error end of delivery tube different level in each test-tube or time to transfer delivery tube ifferent each time or loss of <u>CO</u>₂ from delivery tube ifferent each time or loss of <u>CO</u>₂ from delivery tube if cor seal end of delivery tube during transfer; [max : (iv) organised into table all columns separated by a line + all headings underlined ; headings (top or to left of data) time / minutes + (any column / row headed) volume of H hydrochloric acid / HC/1 cm²; collects readings for at least 4 volumes; records all volumes less than volume recorded in (a)(i); all results to no more than one decimal place; (v) difficult judging colour of end-point (blue / cloudy yellow) or mixing H and C varies for each test-tube; (vi) syringe or ruler + no effect + if use same syringe or ruler or syringe or ruler + results not accurate + not true value; [max (b) (i) (x-axis) even bar widths (R + T) up to 1 cm + (y-axis) labelled mean leaf area / cm plant⁻¹ × 103 + scale (zero at origin) 1.0 to 2cm, labelled every 2cm ; correct plotting of each bar, in the order in the table, with horizontal, ruled sharp line ; (bars) quality of vertical lines, ruled, sharp lines that meet horizontal line exactly labeled with clear labels (R and T); labels must be directly below bars or inside bars or shaded with key (ii) (for R + T) as concentration of <u>CO₂</u> increases the leaf area increases ; quoted figures to support idea that plant R has greater mean leaf area than plant T a highest concentration of translocation ; (c) at least 2 lines for upper epidermis and 2 lines for lower epidermis + one enclosed area (vascular bundle); correct proportion of vascular bundle); (c) at least 2 lines for upper epidermis and 2 lines for lower epidermis + one enclosed area (vascular bundle); <l< th=""><th colspan="2">Page 3</th><th>Mark Scheme GCE AS/A LEVEL – May/June 2014</th><th>Syllabus 9700</th><th>Paper 33</th></l<>	Page 3		Mark Scheme GCE AS/A LEVEL – May/June 2014	Syllabus 9700	Paper 33
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					[Total: 22]

	Page 4		Mark Scheme	Syllabus	Paper
			GCE AS/A LEVEL – May/June 2014	9700	33
2	(a) (i)	at least 9 separate cells in total drawn in boxes S1 , S2 and S3 + size at least 10 mm across largest cell, in any box; from 2 to 6 whole cells (not overlapping) drawn in each of the boxes S1 , S2 and S3 ; drawn only 3 cells in each of the three boxes; at least one colour stated for each of the cells in the boxes S1 , S2 and S3 ; [4]			
	(ii)	S2 -	- 100 (°C) - 45 (°C) - 80 (°C) ;		[1]
	(iii)	yeas	st cells blue + therefore inactive or dead ;		[1]
	(iv)				
			<u>nt</u> dead / blue yeast cells (from sample of yeast cells) ; s graph to find unknown temperature ;	ad / blue yeast cells (from sample of yeast cells) ; oh to find unknown temperature ;	
	(b) (i)		ast 4 whole cells + no shading + size at least 20mm a p and continuous outer line ;	cross cell with g	reatest width +
	(ii)	at le at le uses five	five whole cells ; ast 2 cells with inclusions ; ast 2 cells with buds ; s label line and label to nucleus or cytoplasm ; (measurements) between (9mm to 15mm) + to 0.5mm ws addition of measurements + shows division by num		[5] nents :
		shov	w division by 1200 ; ws conversion of mm to μ m as \times 1000 + units ;		[4]
					[Total: 18]