UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary and Advanced Level

MARK SCHEME for the June 2005 question paper

9700 BIOLOGY

9700/03 **Paper 3 (Practical Test AS), maximum raw mark 25**

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. This shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the June 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Grade thresholds for Syllabus 9700 (Biology) in the June 2005 examination.

	maximum mark available	minimum mark required for grade:		
		A	B	E
Component 3	25	19	17	12

The thresholds (minimum marks) for Grades C and D are normally set by dividing the mark range between the B and the E thresholds into three. For example, if the difference between the B and the E threshold is 24 marks, the C threshold is set 8 marks below the B threshold and the D threshold is set another 8 marks down. If dividing the interval by three results in a fraction of a mark, then the threshold is normally rounded down.

June 2005

GCE AS/A LEVEL

MARK SCHEME

MAXIMUM MARK: 25

SYLLABUS/COMPONENT: 9700/03

BIOLOGY
Paper 3 (Practical Test AS)

Question			Expected Answers	Marks	Additional Guidance
1	(a)	(i)	to ensure same degree of dilution/ concentration of (enzyme)	1	
		(ii)	top left full tube; top right = medium amount of change; bottom left = most change; bottom right = some but little change;	2	3 or 2 correct = 1 mark
		(iii)	**S1** enzyme denatured; correct explanation of denaturing; increased kinetic energy at 45 °C; explanation for acid reducing rate of reaction;	3 max	
	(b)	(i)	length of clear area on y axis; plots correct; line of best fit (dot to dot or smooth curve through all points);	1 1 1	if length of albumin plotted against length of clear tube then max 1 Must use more than half of grid for axis mark Reject extrapolations
		(ii)	correct ref to optimum pH; ref to changes active site; ref to detail cause of change;	1 1 1	e.g. bonds/3D/tertiary
	(c)		three from serial dilution OWTTE; range of at least five enzyme concentrations; explanation of control; keep variables constant or example e.g. constant temp or pH/run for set time; reliability or validity comment;	Max 3	
				15	
2	(a)	(i)	five from: corner vascular bundle bigger than other vb; 3 layers of cells represented plus cambium; no individual cells represented; four sided shape; xylem in corner labelled; phloem labelled correctly; parenchyma labelled correctly; sclerenchyma on outer edge of VB labelled; collenchyma in corners labelled;	Max 5	slide is TS of lamium stem
		(ii)	stem; vascular tissue/strengthening tissue near edges/pith/vascular tissue in bundles/phloem outside xylem/cambium or trichomes present;	1 1	**AVP**

	(iii)	three from: quality of drawing i.e. clear single lines; four cells similar in shape and size; thin cell walls, one line or two close together; 5-8 sided polygonal cells; air spaces/not tight fit;	Max 3 **10**	
				Paper 25