UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Level

MARK SCHEME for the November 2004 question paper

9700 BIOLOGY

9700/05 **Paper 5 (Practical Test A2), maximum raw mark 30**

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 November 2004 question papers for most IGCSE and GCE Advanced Level syllabuses.

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Grade thresholds taken for Syllabus 9700 (Biology) in the November 2004 examination.

	maximum mark available	minimum mark required for grade:		
		A	B	E
Component 5	30	23	18	12

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.
Grade A* does not exist at the level of an individual component.

November 2004

GCE A LEVEL

MARK SCHEME

MAXIMUM MARK: 30

SYLLABUS/COMPONENT: 9700/05

BIOLOGY
Paper 5 (Practical Test A2)

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Qn	Expected Answers	Marks	Additional Guidance
1 a i	1 volume of amylase; 2 volume of substrate; 3 idea of mixing; 4 drops of iodine on tile/test tube; 5 (add drops of mixture) at set time; 6 until no colour change; 7 replication; 8 other specific detail e.g. wash pipette etc; 9 control qualified e.g. boiled enzyme /use water;	max 7	use equal volumes = 1 mark accept put drops of sample on tile; add iodine solution to it;
ii	boxes with data in e.g. time or colour; qualification of data e.g. time taken for starch to disappear; units in headings (secs); mean included;	1 1 1 1	**max 2** if do not use time ignore rate no significant figures
b i	0.81;	1	
ii	axis correct orientation, units and scale correct; plots correct; straight line of best fit;	1 1 1	 points clearly lie close to a straight line, so a line of best fit is clearly the most appropriate way to plot the graph
iii	reference to number/more enzyme <u>molecules</u>; reference to number/more active sites; reference to number of collisions; reference to why linear i.e. excess substrate/enzyme limiting;	max 3	if candidate only refers to enzyme substrate complex allow 1 mark. <u>more</u> enzyme substrate complexes = 2
c	using water bath; for stable temperature/thermostatic/ fixed temperature given between 20 – 60 ^{o}C;	1 1	 AVP
		20	

Qn	Expected Answers	Marks	Additional Guidance
2 a i	different colour/lighter/less densely stained; islets have larger nuclei; islets larger than other structures; islets have irregular shape; more spaces/loosely packed;	max 3	allow blood vessels in spaces
ii	different sizes/shapes/more or less cells;	1	
iii	vary in size and shape; sectioned at different levels; sectioned at different orientations;	max 2	
b	nuclei represented in most cells; nuclei labelled; fine lines joined up with no gaps to show edge of **one** cell membrane; three (of five) cells touching;	1 1 1 1	
		10	**Paper total 30**