UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary and Advanced Level

MARK SCHEME for the November 2004 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 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 3	25	22	20	14

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 AS/A LEVEL

MARK SCHEME

MAXIMUM MARK: 25

SYLLABUS/COMPONENT: 9700/03

BIOLOGY
Paper 3 (Practical Test AS)

UNIVERSITY of CAMBRIDGE
International Examinations

Qn	Expected Answers	Marks	Additional Guidance
1 a i	6.8 g;	1	}
			} mark straight through
ii	2 from:		}
	340/50 or 340 x 1/50 or 340 x 20/1000;		} e.c.f.
	(made 6.8g) up to;		}
	a litre with water/20 cm^3;		} added to a litre = 1 mark
	ensure (completely) dissolved/stir/agitate;	max 2	}
b i	mean calculation correct;	1	
	% calculation correct;	1	
ii	ensure widths/thickness/SA of strips are all the same;		
	larger number of strips/repeat experiment;		
	temperature control;		
	drying with (paper towel) for same time;		AVP
	all strips from same (type) potato;		
	leave > 30 min in solution;		OWTTE
	increase length of each strip;		
	idea of fully immerse potato strip;		
	cover Petri dish;		
	weigh;		
	reference to sensible idea of equipment/use hot water;	max 2	AVP e.g. stir until dissolved if not used in **1 a i**
c i	molarity on X axis, scale correct, labelled with correct units;	1	
	plotting correct;	1	
	line of best fit i.e. straight line close to plots;	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
ii	correct reading from graph and units correct;	1	accept m
iii	chip has lower water potential/more neg/ water has higher water potential/0;		
	water enters chip by osmosis;	max 2	
		13	

Qn	Expected Answers	Marks	Additional Guidance
2 a	2 labels from: cell membrane, cytoplasm, nucleus, labelled; rugby ball shaped; correct proportion of nucleus to cytoplasm;	 1 1 1	 nuclear membrane = 1 mark
b i	correct title; 2 marks for correct drawing points e.g. large nucleus; dark nucleus; lobed nucleus; etc.;	1 max 2	reject leucocyte – accept **all** other correct titles.
ii	units μm; 9 - 20;	1 1	
iii	measurement shown and working shown; >1:1 to 3.5:1;	 2	
iv	correct reference to shape e.g. RBC concave/frogs rugby ball shaped/frogs bigger; correct reference to nucleus;	 1 1 **12**	accept Reverse Argument
			Paper total = 25 marks