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UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2009 question paper for the guidance of teachers

0610 BIOLOGY

0610/05

Paper 5 (Practical Test), maximum raw mark 40

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 must be read in conjunction with the question papers and the report on the examination.

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CIE is publishing the mark schemes for the May/June 2009 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0610	05

Qı	uestio	n	Expected Answers	Marks	Additional Guidance
1	(a)		Drawing size; outline; indication of a number of layers;		measuring at least 5cm in one direction a clear single line, showing narrowing towards the top and detail of base (flattened / roots)
			Labels (brown / red) scales / outer covering / scaly leaves / "skin"; (fleshy) leaves / layers; growing point / shoot / bud / daughter bulb forming; stem; roots; (max 3)	6	A maximum of three for labels ACCEPT 'outer layer'
1	(b)	(i)	they both have thin , protective covering / skin ; growing point / bud ; ref. to similar colour ; ref. to both , round / circular ;	1 max	Look for positive statements, not negative statements NOT 'both hard'
1	(b)	(ii)	Comparative statements must be made correct ref to colour difference; many, layers / parts, (S1) v., no layers / one part (S2); growing point on inside (S1) v. outside (S2); dry / loose, outer layer (S1) v. not dry / attached (S2); roots (S1) v. no roots (S2); scaly (S1) v. not scaly (S2); smooth surface (S1) v. rough surface (S2); AVP;	2 max	and refer specifically to either S1 or S2 ACCEPT fleshy leaves v. none ACCEPT no eye(s) v. eye(s) e.g. size difference
1	(c)	(i)	Recorded in Table 1.1		
1	(c)	(ii)	Recorded in Table 1.1		

direction rowing towards the top loots)

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0610	05

	Pag	e 3	Mark Scheme: Teachers' version IGCSE – May/June 2009			Syllabus 0610	5 P	Paper 05	
Qι	ıestio	n	Expect	ed An	swers			Marks	Additional Guidance
1	(d)	(i)	specific heat in explana use of, explana	volun vater tion fo safety tion fo	et's (reagent / solution); me; r bath / place in hot water / not heated directly; for using water bath related to safety; ty spectacles / test tube holder; for using safety goggles related to safety; e, until colour changes / for a few minutes; Table 1.1		<i>!</i> ;	4 max	Additional Guidance a few cm³ or the same volume as the test solution NOT avoiding, burning / scalding IGNORE wearing overalls / no eating / no drinking etc. Needs the idea of it not being an instant change
1	(d)	(ii)	Record	ed in T					
Та	Table 1.1		Award 1 mark per correct cell in Table 1.1				ACCEPT unexpected results that are in line with the		
			te	test	observations			results shown in the Supervisor's Report IGNORE conclusions, as they are asked for	
				J.	S1	S2			observations
			stard	h	brown / orange / yellow / no change / no reaction	black / blue-bl dark blue	•		
			redu suga	0	green / yellow / orange / brown / ; red	blue-green / g / no change no reaction	e/ ;		S1 must show more reducing sugar than S2 (unless otherwise indicated in Supervisor's Report)

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0610	05

Qı	uesti	on	Expected Answers	N	Marks	Additional Guidance Comments need to be in line with the expect
1	(e)		 (S1) does not contain starch; (S1) contains sugars; (S2) contains starch; (S2) (perhaps) contains some sugars; (S1) is a storage organ; (S2) is (also) a storage organ; ref to explanation / role of storage organs; AVP; 	4	4 max	Comments need to be in line with the expensions (i.e. correct) or consistent with candidate's observations / conclusions e.g. potato / S2, is a (stem) tuber onion / (S1), is a bulb
			Т	otal	21	

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Page 5	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0610	05

	Page	e 5	Mark Scheme: Teachers' version IGCSE – May/June 2009	Syllabus 0610		Additional Guidance Labels should point to the appropriate location on 2 1
Qu	estio	n	Expected Answers		Marks	Additional Guidance
2	(a)	(i)	neck / carotid (pulse); temple; groin / femoral (pulse); other suitable location;		1 max	Labels should point to the appropriate location on 2.1 e.g. foot / thumb pulse / behind knee / inside of elbow
2	(a)	(ii)	artery / blood vessel , near surface ; passing / surge , of blood through , artery / blood pressure against bone or cartilage ; AVP ;	vessel;	2 max	NOT if vein also included NOT 'on skin' NOT if vein also included e.g. ventricular systole blood not , pulsing / surging , in veins
2	(b)	(i)	pulses per 15 seconds recorded for 'attempt 1'; pulse recorded for further 2 repeats; calculation x 4 for rate min ⁻¹ ; mean calculated;		4	ALLOW 12 – 30 beats i.e. 3 replicates in total ALLOW 12 – 30 beats must be correct for all 3 replicates ALLOW ecf mean must be correctly recorded to nearest second o to 1dp ALLOW ecf
2	(b)	(ii)	reliability / identify anomalous reading / AW; heart rate can vary;		1 max	e.g. to minimise the effect of mistakes NOT to avoid mistakes IGNORE ref. to accuracy

Page 6	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0610	05

Qu	estio	n	Expected Answers	Marks	Additional Guidance
2	(b)	(iii)	Award 1 mark for a suitable factor and a further mark for an associated explanation relating to its effect on heart rate.		Additional Guidance Items indicated with * are specified in the syllabus.
			exercise; demand for extra supply of, blood / oxygen / glucose / energy, for muscles;		ora ora (for being 'at rest')
			regular exercise / training; lowers heart rate; stress / anxiety / fear / fright / AW / adrenaline; increase in, * adrenaline / heart rate; high body mass / obesity / AW;		DO NOT CREDIT adrenaline twice
			link with high heart rate; high blood pressure; decreases heart rate; * alcohol;		ora (for low blood pressure)
			small quantities increase heart rate / (larger quantities) reduce heart rate / depressant; * heroin;		
			decreases heart rate; caffeine; increases heart rate; nicotine / smoking;		
			increases heart rate; illness / fever; raised temperature increases rate;		
			environmental factor; corresponding increase or decrease; AVP suitable factor;		e.g. altitude (gives increase) / high temperature (gives increase) / low temperature (gives decrease)
			AVP suitable effect;	4 max	e.g. diet qualified / cholesterol qualified / age qualified

cified in the syllabus.

Page 7	Mark Scheme: Teachers' version	Syllabus	Paper
	IGCSE – May/June 2009	0610	05

Page 7		e 7	Mark Scheme: Teachers' version Syllabus IGCSE – May/June 2009 0610		Additional Guidance Candidates are being judged on their ability to plot data from Table 2.2
Qu	ıestio	n	Expected Answers	Marks	Additional Guidance
2	(c)	(i)	S suitable and even scale on y axis; starts at 0 or a higher number; G to fill over half of printed grid (vertically); P columns correctly plotted; ; (two marks)	5	Candidates are being judged on their ability to plodata from Table 2.2 realistically, 20 or 30 8 or more squares high minus 1 for each incorrect plot CREDIT points correctly plotted according to candidate's scale DO NOT CREDIT plots if being used as a line graph they must be for columns
2	(c)	(ii)	higher body mass corresponds to (s)lower heart beat / ora;	1	
2	(d)		higher heart rate + lower body mass = (link to) shorter life span / ora;	1	
			Total	19	