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CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0610 BIOLOGY

0610/62

Paper 6 (Alternative to Practical), maximum raw mark 40

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Abbreviations used in the Mark Scheme

separates marking points

/ separates alternatives within a marking point

• R reject

• I ignore (mark as if this material was not present)

A accept (a less than ideal answer which should be marked correct)

AW alternative wording

underline words underlined must be present

max indicates the maximum number of marks that can be awarded
 mark independently the second mark may be given even if the first mark is wrong

• A, S, P, L Axes, Size, Plots and Line for graphs

O, S, D, L
 Outline, Size, Detail and Label for drawings

(n)ecf (no) error carried forward

• () the word / phrase in brackets is not required, but sets the context

ora or reverse argument.AVP any valid point

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Qı	uestion Answer		Mark	Additional Guidance		
1	(a)		red	green		
		total time	115	197		
		mean time	38	66		A ecf for means
		one mark per row;;			2	
	(b)	supports statement / ripe fruits do produce more catalase;				
		(paper from) red / ripe fruit are faster (to rise) / takes less time (to rise); ora				
		faster speed / less time linked to more catalase (in red / ripe fruit); ora				
		(more) catalase causes more oxygen / gas / bubbles to be released; ora				
		correct use of manipulated figures;			max 3	A (mean for) red (fruit) is 28 s less / green filter paper 1 takes 25 s longer / ripe fruits take 82 s less than unripe fruits

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(c)	mass of fruit / extract;		A size / amount / weight of extracts
	volume of water (suspending fruit);		
	size / SA filter paper / AW;		
	volume / concentration of hydrogen peroxide;		A amount of hydrogen peroxide
	tube size / depth (of hydrogen peroxide);		
	temperature;		
	any other correct controlled condition;		e.g. time to soak filter paper in extract
		max 2	I pH / light
(d)	method to prepare extracts of pepper; Benedict's (reagent / solution); heat / boil; colour change from <u>blue</u> / turquoise to green / yellow / orange / red;		A cut / chop / crush / grind / AW A add to water / form a solution A Fehling's / copper sulfate and sodium hydroxide A Clinistix A 70 °C or more
	safety factor – water-bath / AW;	5	A goggles / tongs / lab coat / tie hair back / tuck tie in
(e) (i)	A – axes labelled and scaled evenly; S – size;		x-axis: name of fruit y-axis: sugar content /g per 100 g I orientation
	P – all bars plotted accurately ±½ small square;		plots to fill half, or more than half, of grid along both axes
	B – bars not touching, of equal width and equally spaced;		A points for line graphs I distance between origin and first bar
		4	other graphs (e.g. histogram / line graph) = max 3 (A , S and P only)

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		[Total: 18]	
(ii)	15 ÷ 2.7; 6 (times);	2	A. answer to the nearest whole number correct answer = 2 if no working shown. I. units e.g. g I. 15 – 2.7 = 12.3 g

2	(a)	O – outline is single clear line (and no shading anywhere);		I minor overlaps or breaks
		S – size;		drawing larger than 90 mm (length from top of shoot to tip) R If drawing touches / extends into printed words
				minimum detail is two layers, central core and outer layer
		D – detail of layers and proportion;		label line must make contact with structure
		L – label the site of attachment for leaves;	4	
	(b)	iodine in KI solution / iodine solution or reagent (to cut surface);		A drops of iodine
		(If starch present) brown / orange / yellow to blue / black / AW;	2	

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(c)	measurement of ST : 13 ±1 (mm);		A if answer is recorded in cm with matching unit
	actual width: 1.3 ±0.1 (mm);		
	formula: magnification = ST ÷ width / 13 ÷ 1.3;		
	magnification calculation: ×10;	4	whole number answer required
(d) (i)	light has no or little effect on germination (of carrot seeds) / AW;	1	A light is not a limiting factor for germination A light is not needed for germination
(ii)	repeat;		
	use more seeds;		I
	use seeds from same source or species;		
	both sets of seeds received water or kept moist after soaking / AW;		
	cover uncovered dish with transparent paper / AW;		
	count the number of seeds that germinated;		
	both sets kept at same temperature;		
	same humidity;		
	both in same air or amount of oxygen;		
	AVP;	max 1	
		[Total: 12]	

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3 (a)	feature (end of) abdomen / body /AW bands / stripes (on abdomen / body) /AW two correct feature correct description		female pointed / AW; white / light / AW; long / AW; thin / AW; six or five / more; white / light /grey / AW;		A. comparative answers / presence or absence of features A. round vs oval
	correct description two descriptions;;	s in each row, one	mark each for any	max 3	
(b)	one pair of antenn	ae;			A compound eyes
	wings;			2	

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(c)	independent variable:			
	different colours (of flowers / paper / AW);		A only two different colours / named colours	
	controlled variables: (max 2) similar flowers for shape / size / AW;		A same paper flowers /shapes	
	similar nowers for snape / size / Avv, same type of attraction mechanism / scent / honey guides / nectar / same plant species;			
	same area (in open) / same number of bees and flies (if in enclosed chamber) / AW;			
	same time / period;			
	method:			
	count / observe / video / film / record the number of			
	visits / AW;			
	repeats / AW;			
	handling of data:			
	calculate average / tally chart / graph / table / AW;			
	AVP; e.g. a safety point with reference to bees	max 5		
		[Total: 10]		