CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 series

0610 BIOLOGY

0610/61 Paper 6 (Alternative to Practical), 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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Cambridge is publishing the mark schemes for the October/November 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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Question	Mark scheme	Mark allocation	Guidance
1 (a) (i)	respiration / fermentation;	[1]	
(ii)	carbon dioxide;	[1]	**A** chemical formula if correct.
(iii)	limewater; cloudy / milky / AW;	[2]	**A** ecf If test matches gas named in (ii)
(b)	temperature control / avoid temperature fluctuation / to keep them at same temperature / AW; (warm water) increase in rate of reaction / activates yeast / increases respiration / AW; correct reference to enzyme activity;	Max [2]	
(c)	*Description* **W1** lower number bubbles than **W2** / AW; No: bubbles decrease from trial 1 to trial 2 and /or trial 3 (for **W1** and /or **W2** / AW; *Explanation* less yeast in **W1** / **W2** has been (reacting) in warm water longer / AW; sugar / substrate decreasing;	Max [3]	Explanation must link to correct description

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(d)	*Any 2 sources of error and 2 linked suggestions of improvement.* e.g. *Error*: change in temperature / different starting temperatures / different length of time in warm water; *Improvement*: (monitor with thermometer and) add hot / cold water (to keep constant) / use water bath / start testing at same time / AW; *Error*: varying amounts of yeast *Improvement*: use same mass yeast / AW; *Error*: (inaccurate) timing; *Improvement*: use stop watch / AW; *Error*: (variable) shaking of tube; *Improvement*: shake for same amount of time / at same rate / AW; *Error*: inaccurate counting of bubbles / different sized bubbles; *Improvement*: use gas syringe / measuring cylinder / repeat (experiment);	**Max [4]**	**NB** Improvement should be **specific** to an error and refer to an experimental method.
		[Total: 13]	
2 (a)	**O** outline; **S** size and proportion; **D** details; Label;	**[4]**	

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(b) (i)	midrib / (network of)veins / petiole or leaf stalk / serrated edge / AW / AVP	**[1]**	**lg** size / shape /sharp. Give ECF BOD for incorrect drawing label.
(ii)	entire v divided (into leaflets) / simple v compound / AW; leaf v <u>leaflets</u>; pointed tip v rounded tip; AVP;	**Max [2]**	Must have a comparative answer.
(c) (i)	line to or within palisade cell;	**[1]**	
(ii)	start / entry from outside through lower stoma; end on or in labelled cell / c(i) cell;	**[2]**	Max 1 if no arrows or arrows in wrong direction
(d)	measurement **: 14** ± 1 mm); formula : length ÷ magnification; calculation **: 0.05** (0.046 – 0.054 mm);	**[3]**	If different unit e.g. cm, then units must be present.
(e) (i)	idea of mesophyll cells / blade / lamina / AW decomposed first / veins or midrib remain; midrib / veins harder or tougher (so remain) / lamina softer or weaker / AW; by bacteria / fungi / microorganisms or detritivores / named examples; digestion / respiration / decay (by decomposers); AVP;	**Max [3]**	

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(ii)	**A** –axes and linear scaling; **S** – size; **P** – correct plots; **L** – line;	**[4]**	
(iii)	increase in mass at start / first 6 months / AW; (overall or after 6 months) mass decreases; correct reference to figures;	**[3]**	
		[Total: 23]	
3 (a) (i)	A C	**[2]**	
(ii)	2 from elongated body shape / eyes / scales / no legs or limbs;;	**[2]**	
		[Total: 4]	

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