CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2012 series

0610 BIOLOGY

0610/62 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.

Cambridge will not enter into discussions about these mark schemes.

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)	20;	[1]	
(b) (i)	**A** – axes; label and sensible even linear scale; **S** – size; **P** – correct plots; **L** – smooth curve or points joined by rules lines; **K** – key or other means to distinguish the two sets of data;	[5]	
(ii)	[1] clotting time quicker / decrease [for dried **or** fresh milk] with increasing temperature; [2] dried milk slower to clot / fresh milk quicker to clot / AW; [3] credit to using data ; [4] fresh milk 41°C slower clotting; [5] AVP;	Max[4]	Must be comparative answer

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(c)	increased / more reliability / AW; results show variation / detect anomalies / error might occur / reduce errors or anomalies / AW; judging clotting first time / first reading may not be accurate; to check method / technique ; AVP; **Max[2]**		**Ignore** fair test alone. **Ignore** average / mean / increased accuracy.
(d)	[1] Rate of enzyme activity affected; [2] Increased rate / works faster or decrease in rate / works slower; [3] Temperature is independent variable AW; [4] AVP; **[3]**		**Ignore** optimum / denaturation.
(e)	safety – eye protection / lab coat / hair tied back / gloves; equality of mass / volume / sample or amount; test filtrate / whey **and** clots separately; biuret reagent / chemicals in reagent; (blue) to purple / lilac / mauve / AW; comparison on intensity / description of colours / faster or slower colour change; **Max[4]**		**Ignore** repeat. **Ignore** water bath / tongs. Mass – accept weight. Albustix / other correct tests reagents (millons / xanthoproteic)
		[Total: 19]	

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<table>
<tr><td>2 (a) (i)</td><td>O outline;
S size;
D detail;</td><td>[4]</td><td>Ignore roots or no roots.
Ignore ‘flesh’ alone / root hairs.</td></tr>
<tr><td>(ii)</td><td>2 from: (asexual) reproduction / storage / perennation / anchorage ;</td><td>[2]</td><td>Ignore references to absorption as referring to roots and not the whole organ.</td></tr>
<tr><td>(b)</td><td>Iodine solution / iodine in KI;</td><td>[1]</td><td>Do not accept ‘iodine’ alone.
A Lugol’s solution.</td></tr>
<tr><td>(c) (i)</td><td>one appropriate cell ringed;</td><td>[1]</td><td></td></tr>
<tr><td>(ii)</td><td><u>mitosis;</u></td><td>[1]</td><td>A. anaphase. NOT if anaphase 1 or anaphase 2.</td></tr>
<tr><td>(d)</td><td><table><tr><th colspan="2">dividing cells and mature cells</th></tr><tr><td>shape – square / smaller</td><td>elongate / rectangular / larger;</td></tr><tr><td>chromosomes visible / no nucleus</td><td>No visible chromosomes / distinct nucleus;</td></tr><tr><td>vacuole absent / small</td><td>vacuole present / large;</td></tr><tr><td>No cell wall between dividing nuclei / cell wall less distinct</td><td>cell wall clearly visible;</td></tr></table></td><td>Max[2]</td><td>Answer needs to be comparative. Both types need to be covered.</td></tr>
<tr><td></td><td></td><td>[Total: 11]</td><td></td></tr>
<tr><td>3 (a)</td><td>use oxygen / taking in;
(soda lime absorbs) carbon dioxide produced / released;
volume decrease;
drop in pressure / suction;</td><td>[4]</td><td>A breathe in oxygen.</td></tr>
<tr><td>(b)</td><td>no soda lime / glass beads / other inert substance / dead maggots (not rotting!) / no maggots;</td><td>[1]</td><td></td></tr>
</table>

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(c)	Distance of bubble moved Increases with rise in temperature to 35°C; Decreases with temperature in excess of 35°C; 35°C is the best / optimum;	**[3]**	
(d)	maggots respire faster / AW; Activity of enzymes increases / faster rate; AVP e.g. for doubling rate for10°C rise in temperature ;	**Max[2]**	**Ignore** descriptions only.
		[Total: 10]	

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