CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0610 BIOLOGY

0610/51 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 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 May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

<table>
<tr><th>Question</th><th>Mark Scheme</th><th>Marks</th><th>Comments</th></tr>
<tr><td>1 (a)</td><td>Iodine solution or reagent / iodine in KI;

brown / orange / yellow to blue / purple / black / AW;</td><td>

[2]</td><td>I iodine alone</td></tr>
<tr><td>(b)</td><td>no reducing sugar present – remains blue;

low concentration – green / yellow;

high concentration – orange / red;</td><td>

[3]</td><td>A no change

A intermediate shades

A brick red</td></tr>
<tr><td>(c)</td><td><table><tr><td>time / mins</td><td>starch test</td><td>reducing sugar</td></tr><tr><td>0</td><td>obs –
concl. -</td><td>obs –
concl. –</td></tr><tr><td>5</td><td>obs –
concl. -</td><td>obs –
concl. –</td></tr><tr><td>10</td><td>obs –
concl. –</td><td>obs –
concl. –</td></tr></table></td><td>

[6]</td><td>Check Supervisors Report.

both observations in each row ;;;
Both conclusions in each row match observations ;;;</td></tr>
<tr><td>(d)</td><td>break down of starch;
to form reducing sugar;

reference to the candidate’s own results;</td><td>

max [3]</td><td>Check Supervisors Report.</td></tr>
<tr><td>(e) (i)</td><td>avoid contamination / prevent mixing / AW;</td><td>[1]</td><td></td></tr>
<tr><td>(ii)</td><td>to see colour change easily or clearly / AW;</td><td>[1]</td><td></td></tr>
</table>

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(f)	replace enzyme with water; inactive enzyme by use of a low temperature / denature with high temperature ;	[2]	
(g)	replication qualified / identify anomalies / AW;	[1]	
(h)	amyl**ase** / carbohydr**ase** / malt**ase**;	[1]	
(i) (i)	**A** – axis labelled and scaled <u>evenly</u>; **S –** size – plots for 'time' must use half or more of the axis; **P –** all points plotted accurately; **L –** line through all points;	[4]	Accurate to ± 0.5 of small square.
(ii)	pH 7(.0);	[1]	
(iii)	*<u>below optimum / pH 7or neutral</u>* as pH increases the activity increases / time decreases / AW; *<u>above optimum / pH 7 or neutral</u>* as pH increases the activity decreases / time increases / AW; credit use of figures; decreased activity / increased time occurs more rapidly / has steeper curve above pH 7;	max [3]	To gain credit a comparison between two data points with a calculation should be shown.
		[Total: 28]	
2 (a)	(line and) label / (i) to xylem of gorse; (line and) label / (ii) to phloem of gorse;	[2]	

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(b)	in / from / via xylem (of gorse);	[1]	
(c)	measurement of **MN** : **9** ± 1 [mm]; formula : length ÷ 50; actual width : **0.18** [mm]	[3]	**A** ecf for calculation
d (i)	**O –** outline **–** clear unbroken line and no shading; **S –** size; **D –** detail ; **L** – one correct label from: leg / limb / cephalohorax / mouthpart;	[4]	Drawing larger than 70 mm at widest point between legs. **A** evidence of jointed leg(s) **and** mouth parts
(ii)	Arachnid(a) ; 4 pairs or 8 legs / 2 parts to body;	[2]	
		[Total: 12]	

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