UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

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

- Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

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<table>
<tr><th>Question</th><th>Mark scheme</th><th>Mark</th><th>Guidance</th></tr>
<tr><td>1 (a) (i)</td><td>outer surface – (bright) green / shiny / smooth / waxy / hard / waterproof;
inner surface – white or pale, matt green / soft / wet / moist / sticky;</td><td>Max [1]</td><td></td></tr>
<tr><td>(ii)</td><td>completion of all four boxes to show leaf pieces;
comparative difference between those in water and air;
comparative difference between the pieces in the two different salt solutions;
correct difference between the two salt solution pieces (more curved in 10% than 5%);</td><td>[4]</td><td></td></tr>
<tr><td>(iii)</td><td><table><tr><td></td><td>In water</td><td>In salt</td></tr><tr><td>description</td><td>firm / turgid</td><td>OR
Soft / flaccid;</td></tr><tr><td>explanation</td><td>water enters;</td><td>water leaves;</td></tr><tr><td colspan="3">reference to osmosis;</td></tr></table></td><td>[4]</td><td></td></tr>
<tr><td>(iv)</td><td>addition of water;
appropriate volume of water to 5% to give 2.5% solution;</td><td>[2]</td><td></td></tr>
<tr><td>(v)</td><td>one source of error + one improvement of that error.<table><tr><td>error</td><td>improvement</td></tr><tr><td>not measuring volume accurately;</td><td>use syringe / pipette;</td></tr><tr><td>not mixing before measuring;</td><td>stir / shake to mix before removing sample;</td></tr></table></td><td>[2]</td><td>Error must be linked to improvement.</td></tr>
</table>

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(b) (i)	*Starch test:* *Obs* – colour of iodine solution-no change; *Concl*. – no starch present / starch absent;	[2]	
(ii)	*Method for protein test.* add biuret reagent; safety – gloves / goggles / lab coat OR preparation of sample – cut / grind leaf;	[2]	
(iii)	*Protein test carried out:* *Obs* – blue to purple / dark blue / mauve; OR no change; *Concl* – protein present OR protein absent;	[2]	Check Supervisor's Report.
(c)	*Measurement of diam from Fig. 1.3 [external]:* [7.1 – 6.0 **cm** or 71 – 60 **mm**] Units need to be given. *Formula:* show ÷ of measurement by 0. 5 / 5; *Mag* 14.2 – 12 ;	[3]	
		[Total: 22]	

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2 (a) (i)	**A**;	[1]	
(ii)	**Two** from: number of legs / more than six legs; cephalothorax / two parts to body; size / shape of abdomen / AW; claws / AW; no wings ; long antennae;	Max [2]	
(iii)	insect / Insecta;	[1]	
(b)	**Outline:** use of single clear lines for drawing; **Size:** larger than Fig. 2.1 photograph ; **Detail:** of antennae / head / leg / wing; **Label:** 1 label mark only; **one** from: antenna / head / leg / wing / eye	[4]	**R** shading / cross hatching
(c) (i)	one from each range: 37 – 39 41 – 44 42 – 45 47 – 50 52 – 54 ; ;	[2]	

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(ii)	tally method correct; frequencies correct;;	 [3]	Tally should show the 5 bars correctly i.e. '5 bar gate'.
(iii)	**A** – axes label and scale; **S** – size to fill at least ½ of grid; **P** – plot; **C** – columns touching and equal in width;	 [4]	+/– 1 mm
(iv)	any suitable suggestion, e.g. sexes different lengths / different ages;	 [1]	
		[Total: 18]	

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