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Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0610 BIOLOGY

0610/52 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.

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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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Question	Answer	Mark	Additional Guidance
1 (a) (i)	4 results recorded; results recorded in <u>seconds</u>; consistent results for each pair of results; one faster than the other;	4	two cells complete = 1 mark times recorded in minutes and seconds = max 3
(ii)	bubbles (collect on filter paper) / effervescence / fizzing;	1	
(iii)	(paper from)… faster to rise / takes less time; ora faster speed / less time linked to <u>more</u> catalase (in …… fruit); ora more catalase causes more, oxygen / gas / bubbles, to be released; ora correct use of manipulated figures;	max 3	description taken from results in **(a)(i)** red / ripe **or** green / unripe **A** enzyme
(b)	method to prepare extracts of pepper; Benedict's (reagent / solution); heat / boil; colour change from <u>blue</u> or turquoise to green / yellow / orange / red; safety factor – water-bath / AW;	5	**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 **A** goggles / tongs / lab coat / tie hair back / tuck tie in

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(c) (i)	A – axes labelled **and** scaled evenly; S – size; P – all bars plotted accurately ±½ small square; B – bars not touching, of equal width and equally spaced;	**4**	*x*-axis: name of fruit *y*-axis: sugar content / g per 100 g **I** orientation plots to fill half, or more than half, of grid along both axes **A** points for line graphs **I** distance between origin and first bar other graphs (e.g. histogram / line graph) = max 3 (**A**, **S** and **P** only)
(ii)	6 (times); 15 ÷ 2.7;	**2**	answer must be whole number
		[Total: 19]	

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2 (a)	**O** – outline is single clear line (and no shading anywhere); **S** – size; **D** – detail of layers and proportion; **L** – label the site of attachment for leaves;	**4**	**I** minor overlaps or breaks 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 label line must make contact with structure
(b) (i)	(turns) blue-black;	**1**	**A** darker
(ii)	blue-black means starch present / AW; description of distribution of starch shown;	**2**	
(c)	measurement of **ST**: 13 ±1 (mm); actual width: 1.3 ±0.1 (mm); formula: magnification = **ST** ÷ width / 13 ÷ 1.3; magnification calculation: ×10;	**4**	**A** if answer is recorded in cm with matching unit whole number answer required
		[Total: 11]	

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<table>
<tr>
<td>3 (a)</td>
<td>
<table>
<tr><td>feature</td><td>male</td><td>female</td></tr>
<tr><td rowspan="3">(end of) abdomen / body /AW</td><td>rounded / blunt / AW</td><td>pointed / AW;</td></tr>
<tr><td>black / dark / AW</td><td>white / light / AW;</td></tr>
<tr><td>short / AW</td><td>long / AW;</td></tr>
<tr><td rowspan="3">bands / stripes (on abdomen / body) /AW</td><td>wide / AW</td><td>thin / AW;</td></tr>
<tr><td>three or four / less</td><td>six or five / more;</td></tr>
<tr><td>dark / black / AW</td><td>white / light /grey / AW;</td></tr>
</table>
<u>two</u> correct features in first column;
correct descriptions in each row, one mark each for any two descriptions;;
</td>
<td>max 3</td>
<td>A. comparative answers / presence or absence of features
A. round vs oval</td>
</tr>
<tr>
<td>(b)</td>
<td><u>one pair</u> of antennae;

wings;</td>
<td>2</td>
<td>A compound eyes</td>
</tr>
</table>

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(c)	independent variable: different colours (of flowers / paper / AW); controlled variables: (max 2) similar flowers for shape / size / AW; 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**	**A** only two different colours / named colours **A** same paper flowers /shapes
		[Total: 10]	

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