GradeMax

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the May/June 2015 series

0610 BIOLOGY

0610/51 Paper 5 (Practical Test), maximum raw mark 40

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Abbreviations used in the Mark Scheme

- **;** separates marking points
- / separates alternatives within a marking point
- **R** reject
- **ignore** mark as if this material was not present
- **A** accept (a less than ideal answer which should be marked correct)
- AW alternative wording (accept other ways of expressing the same idea)
- underline words underlined (or grammatical variants of them) 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
- ecf credit a correct statement that follows a previous wrong response
- ( ) the word / phrase in brackets is not required, but sets the context
- **ora** or reverse argument
- AVP any valid point

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	Mark scheme	Marks	Guidance for Examiners
1 (a)	drawing uses single clear unbroken lines with no shading ; drawing occupies at least half of the space provided ; minimum detail is outer layer and central area with segments indicated ; correctly labelled structure ;	[4]	
(b) (i)	buffer X yellow / orange buffer Y green / blue ;	[1]	1 mark for both colours correct
(ii)	buffer X pH5 buffer Y pH8 ;	[1]	1 mark for both pH values correct
(c)	four volumes completed ; units cm^3 ; B2 highest volume of juice ; A2 / C2 lowest volume of juice ;	[4]	
(d) (i)	B2 has a larger volume / A2 less or smaller volume / AW ; comparison of appearance of filtrate, i.e. B2 is clear and A2 is cloudy / transparent / AW ;	[2]	

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	Mark scheme	Marks	Guidance for Examiners
(ii)	D2 has a larger volume / C2 less or smaller volume / AW **;** comparison of appearance of filtrate, i.e. D2 is clear and C2 is cloudy / transparent / AW **;**	[2]	
(e)	B2 more juice than D2 / **ora ;** B2 juice clearer / lighter than D2 / AW / **ora ;** (enzyme) works better or faster in B2 **/** at pH 4 / in acidic conditions / **ora ;**	[3]	

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	Mark scheme	Marks	Guidance for Examiners
(f) (i)	comparison / control / keep the same volume or amount (at start) / AW **;**	[1]	
(ii)	*any two from:* type of fruit / volume or amount of fruit / total volume of mixture / time to filter fruit/ volume of buffer / AW **;;**	max [2]	
(iii)	*two improvements from:* wider range of pH values / (stand for) longer time / stir (continuously for longer) / filter for longer / maintain same temperature / repeat for reliability or to eliminate anomalies or to calculate mean results / change to apparatus e.g. clips to hold filter paper / AVP **;;**	max [2]	
		[Total: 22]	
2 (a) (i)	*two sites marked on Fig 2.1:* wrist / neck / groin / temple / finger / toe / elbow / thumb / arm pit / back of knee **;;**	max [2]	
(ii)	arteries near surface of skin / arteries can be pressed against bone or hard structure beneath / AW **;**	[1]	
(b) (i)	65 +/– 1 [mm] **;**	[1]	
(ii)	(65+/– 1 / 125 = 0.51 – 0.53 [mm]) **;**	[1]	ecf from **(b) (i)** 1 mark for correct answer with no working shown

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<table>
<tr><th></th><th>Mark scheme</th><th>Marks</th><th>Guidance for Examiners</th></tr>
<tr><td>(iii)</td><td>take multiple (more than one) readings for diameter across different positions ;
calculate average length and use this value in calculation ;</td><td>[2]</td><td></td></tr>
<tr><td>(iv)</td><td>
<table>
<tr><th>feature</th><th>vein</th><th>artery</th></tr>
<tr><td>shape</td><td>round</td><td>oval / AW</td></tr>
<tr><td>wall</td><td>thin</td><td>thick</td></tr>
<tr><td>(detail of) layers</td><td>smooth / single layer / AW</td><td>uneven / two or more layers / AW</td></tr>
<tr><td>lumen / inner space / internal diameter AW ;</td><td>large / circular</td><td>small / oval ;;;</td></tr>
</table>
</td><td>max [4]</td><td>1 mark for all 3 correct features
1 mark for each pair of appropriate differences</td></tr>
</table>

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	Mark scheme	Marks	Guidance for Examiners
(c) (i)	heart / pulse rate taken before and after exercise **;** heart / pulse rate taken immediately after exercise **;** exercise – same type / same length of time / AW **;** students – same age / gender / clothing / AW **;** repeat for each type of student / use groups of students **;**	max [4]	
(ii)	table drawn with (ruled) lines and distinct columns / rows **;** *correct headings:* type of student / AW **;** pulse / heart rate before and after exercise with unit for pulse rate, i.e. beats per min / bpm / beats per unit time in the heading / s **;** increase / difference in pulse rate / average pulse rate for all students **;**	max [3]	
		[Total: 18]	

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