

CAMBRIDGE INTERNATIONAL EXAMINATIONS**Cambridge International General Certificate of Secondary Education****MARK SCHEME for the May/June 2015 series****0610 BIOLOGY****0610/61**

Paper 6 (Alternative to Practical), maximum raw mark 40

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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
- **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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Question	Mark scheme	Marks	Comments
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)	pH of buffer X = 4 ; pH of buffer Y = 8 ;	[2]	
(c)	comparison / control / keep the same volume or amount (at the start) / AW ;	[1]	
(d)	A – 10, B – 19, C – 11, D – 11 ; cm ³ in column heading ;	[2]	all 4 correct measurements = 1 mark
(e) (i)	A has (9 cm ³) less volume or amount than B / ora ; B is clear and A is cloudy / AW ;	[2]	
(ii)	C and D are both the same volume or amount / 11 cm ³ ; both (as) cloudy / AW / look the same ;	[2]	

Page 4	Mark Scheme	Syllabus	Paper
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Question	Mark scheme	Marks	Comments
(f)	<i>effect of pH on volume:</i> pH 4 / acidic – more juice or pH 8 / alkaline – less juice ; <i>effect of pH on appearance:</i> pH 4 / acidic – juice more clear or pH 8 / alkaline – juice more cloudy / AW ; <i>effect of pH on enzyme:</i> enzyme works better / faster at pH 4 or acidic, works less well / slower at pH 8 or alkaline / AW ;	[3]	

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Question	Mark scheme	Marks	Comments
(g) (i)	<i>any two from:</i> type of fruit / volume or amount of fruit / total volume of mixture / time to filter fruit/ volume of buffer / AW ;;	max [2]	
(ii)	<i>two improvements from:</i> 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 / AVP ;;	max [2]	
		[Total 20]	

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Question	Mark scheme	Marks	Comments
2 (a) (i)	<i>two sites marked on Fig 2.1:</i> wrist / neck / groin / temple / finger / toe / elbow / thumb / arm pit / back of knee ;;	max [2]	
(ii)	arteries near surface or skin / arteries can be pressed against bone or hard structure beneath / AW ;	[1]	
(b)	apply pressure (using finger) to pulse site / AW ; count pulse / number of beats per unit time / AW ;	[2]	
(c) (i)	65 +/- 1 [mm] ;	[1]	
(ii)	(65 +/- 1 / 125 = 0.51 – 0.53 [mm])	[1]	ecf from (c) (i)
(iii)	take multiple (more than one) readings for diameter across different positions ; calculate average length and use this value in calculation ;	[2]	

Page 7	Mark Scheme	Syllabus	Paper
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Question	Mark scheme	Marks	Comments															
(iv)	<table><tr><td><i>feature</i></td><td><i>vein</i></td><td><i>artery</i></td></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>	<i>feature</i>	<i>vein</i>	<i>artery</i>	shape	round	oval / AW	wall	thin	thick	(detail of) layers	smooth / single layer / AW	uneven / two or more layers / AW	lumen / inner space / internal diameter / AW ;	large / circular	small / oval :::	max [4]	1 mark for all 3 correct features 1 mark for each pair of appropriate differences
<i>feature</i>	<i>vein</i>	<i>artery</i>																
shape	round	oval / AW																
wall	thin	thick																
(detail of) layers	smooth / single layer / AW	uneven / two or more layers / AW																
lumen / inner space / internal diameter / AW ;	large / circular	small / oval :::																
(d) (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]																

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Question	Mark scheme	Marks	Comments
(ii)	table drawn with (ruled) lines and distinct columns / rows ; <i>correct headings:</i> 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 20]	