CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the March 2015 series

0610 BIOLOGY

0610/62 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
- wiggly underline the idea conveyed by the word(s) underlined must be present in the answer
- 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	Answer	Mark	Comments
1 (a) (i)	axes labelled with units, appropriate scale on both axes ; size to fill half or more space in both dimensions ; plotted points + / – one small square accuracy with appropriate correct symbols ; neat, accurate, ruled or smooth line passing through the plotted points ; key to identify A and B plots and curves ;	[5]	**A** reversed orientation of axes
(ii)	*description* 1 number of bubbles in a minute increases with time ; 2 A released bubbles, more / faster (than B) / **ora** ; 3 (colour change) from red to, yellow / yellow pink with time ; 4 A changed colour faster (than B) / **ora** ; 5 A formed foam, more / faster (than B) / **ora** ; 6 suitable comparative data quote at a stated time ; *explanation* 7 releasing gas by respiration ; 8 gas released carbon dioxide ; 9 carbon dioxide is acidic ; 10 causes hydrogencarbonate indicator solution to change from red to yellow ; 11 A is respiring aerobically / B is respiring anaerobically ; 12 (the rate of) gas released in anaerobic respiration is slower / **ora** ;	[max 5]	max 3 for each of description and explanation
(iii)	use up, glucose / substrate ; production of ethanol toxic ; (water bath) cools down ; enzyme activity / respiration rate slows ;	[max 1]	
(b) (i)	to mix / spread (evenly) ; yeast cells sediment to bottom / AW ; to prepare a uniform sample ;	[max 1]	
(ii)	to exclude the oxygen / gas / air ;	[1]	

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(iii)	(warm) temperature speeds up (enzyme / yeast) activity / respiration (rate) / metabolism / fermentation / AW ; temperature, is controlled / kept equal ;	[max 1]	
(c) (i)	presence / absence, of oxygen / oil ;	[1]	**A** oxygen / air / gas
(ii)	concentration / volume / mass, of yeast culture in A and B ; concentration / volume / mass, of glucose in yeast culture ; time for yeast culture to stand before use ; (water bath) temperature ; AVP ; e.g. species of yeast, volume / concentration, of indicator	[max 2]	**R** oxygen / oil / rate of respiration
(d)	bubble production / colour change / foam production ; divided by time ;	[max 2]	
(e) (i)	asexual reproduction / mitosis / budding / AW ;	[1]	
(ii)	100 (mm) ; formula : length measured ÷ magnification ; 0.02 ;	[3]	**A** 99 – 101 (mm) **A** 0.0198 – 0.0202
		[Total: 23]	
2 (a) (i)	outline clear, unbroken lines ; size to show both outlines equal in size to fill more than the 6 cm of the available space ; drawing shows arrangement of seeds and calyx on outer view ; drawing shows arrangement of receptacle and surrounding vessels on cut surface ; label to show: sepal / calyx / seed(s) / receptacle / fleshy or edible part / AW ;	[5]	
(ii)	(fruit) is edible / eaten (by animals / humans) ; seeds pass through (body / alimentary canal) unharmed / undigested ; egested / deposited in, excreta / faeces ;	[max 2]	

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<table>
<tr><td>(b) (i)</td><td>safety – test-tube holder or tongs / use of hot water bath / goggles / heat proof gloves / knife safety ;
Benedict’s reagent or component chemicals ;
(reagent) heated ;
orange / (brick) red / green / AW ; i.e. colour of positive result</td><td>[4]</td><td></td></tr>
<tr><td>(ii)</td><td>biuret (reagent) or the named components ;
expected positive result – (mauve / purple / lilac) AW ;</td><td>[2]</td><td></td></tr>
<tr><td>(c) (i)</td><td>presence of sepals ;
seeds present ;
seeds present in, pits / AW ;</td><td>[max 2]</td><td></td></tr>
<tr><td>(ii)</td><td><table>
<tr><td>feature</td><td>S</td><td>T</td></tr>
<tr><td>seed</td><td>lighter / smaller / deeper pits</td><td>darker / larger / shallower pits ;</td></tr>
<tr><td>shape</td><td>rounded</td><td>elongated / oval ;</td></tr>
</table></td><td>[2]</td><td></td></tr>
<tr><td></td><td></td><td>[Total: 17]</td><td></td></tr>
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