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

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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the March 2015 series for most Cambridge IGCSE® components.

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

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]	

(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]	

<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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