CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2014 series

0610 BIOLOGY

0610/63 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 May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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	Mark Scheme	Mark	Guidance
1 (a)	candidates have filled in temperatures (lowest to highest) ; times are transferred in correct sequence 0–20 ; colour of indicator recorded correctly from Fig.1.1 in all columns ;	[3]	
(b) (i)	lipase works best in alkaline conditions / provides suitable pH for lipase ;	[1]	
(ii)	idea that both tubes reach the experimental temperature ;	[1]	
(iii)	fatty acids produced by the breakdown of fat ; (acids) lower pH (causing colour to change) ;	[2]	
(iv)	stays blue / no colour change ; enzyme doesn't react / denatured / AW ;	[2]	
(v)	anomalous 21 °C, for 10 min ; reason: idea that the colour changes are not in the expected order ;	[2]	
(c)	2 × 2 of: **V:** enzyme concentration ; **C:** same source / concentration of enzyme / lipase used in all tubes ; **V:** substrate concentration ; **C:** same source of milk / same type of milk / or named type ; **V:** indicator ; **C:** same concentration / volume added / comparison of colour with chart or meter; **V:** timing length of reaction; **C:** minute intervals precisely using timing device;	[4]	

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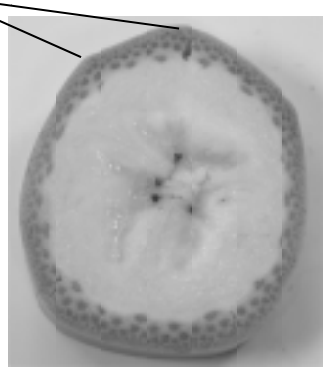
(d)	idea of more temperatures / a bigger range of temperatures ; idea of smaller / uniform intervals between the temperatures ; example of a better way of measuring pH ;	max [2]	
		[Total: 17]	
2 (a) (i)	**O**(utline) – single clear lines with no shading; **S**(ize) – occupies at least half of the space provided ; **D**(etail) 2 of:- [1] shape approximately circular with a least two 'corners'; [2] 3 layers shown and relative thickness of layers shown with an irregular central region ; **L**(abel) –[where seeds form] label in central zone ;	max [4]	'corners' 
(ii)	line drawn on Fig. 2.1 and measurement recorded ; line drawn on drawing and measurement recorded ; **units** recorded for at least one measurement ;	[3]	
(iii)	diameter of specimen in Fig. 2.1 ; magnification shown correctly ;	[2]	
(b)	in the middle layer of the banana ;	[1]	

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(c) (i)	**A**(xes) – labelled with units and suitable even scale ; **S**(ize) – occupies at least half the grid ; **P**(lot) – all points plotted accurately ±½ square ; **B**(ars) – have an equal gap between each component ;	[4]	
(ii)	22.25 + 0.25 + 2.00 + 2.50 = 27 ; 100 – 27 (ecf) = 73 (ecf) ;	[2]	
(d) (i)	day 5 ; maximum reducing sugar content ; OR day 4; skin has gone completely yellow;	[2]	
(ii)	$\frac{30}{5}$; = (×) 6 / 6 times ;	[2]	
(iii)	the starch has been broken down to (reducing) sugar ;	[1]	
(iv)	*2 features from:* colour / taste / smell ;;	max [1]	
		[Total: 23]	

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