UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the October/November 2011 question paper for the guidance of teachers

0610 BIOLOGY

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

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Question	Mark scheme		Guidance **A** = accept, **R** = reject **I** = ignore **AW** = alternative wording
1 (a) (i)	results for cube 1 in Table 1.1 for bubbles ; for froth ;	[2]	one mark for each observation
(ii)	results for cube 2 in Table 1.1 for bubbles ; for froth ;	[2]	one mark for each observation
(iii)	results for cut up cube – bubbles ; results for cut up cube – froth ;	[2]	one mark for each observation
(b)	calculate average / repeat if very different / may miss reaction / improve reliability of data ;	[1]	
(c) (i)	cut up cube results in larger or more bubbles / at increased rate / faster ; more froth / greater depth / changes rate of activity ;	[2]	
(ii)	greater surface area / more contact with H_2O_2 ; freshly cut surface ;	[2]	

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(d)	difficulty cutting / longer or shorter ; more or less bubbles / froth ; tube gets hot / reaction gives off heat / is exothermic ; bubbles get larger ; inaccurate timing ; because size of bubbles varies ; bubbles join / too fast ; difficulty counting bubbles ; bubbles evolving too fast to count ; foam collapses as bubbles burst / AW ; cannot measure depth ; AVP ; and explanation ;	[max 2]	**A** ref to temperature loss of gas / oxygen when opening bung
(e)	**diagram** of apparatus ; collect the oxygen and measure **volume** with measuring cylinder or gas syringe instead of counting bubbles ; bubbles vary in size ; rate of bubbling too high to count ; hands free ; use **syringe** connected to tube A ; to add H_2O_2 to tube A ; without removing the bung ; not to let gas out ; water bath ; maintain / control (low) temperature ; stop overheating ; not denature enzyme ; same rate of activity of enzyme ; volume of gas not altered by temperature ;		

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	graduated tube for foam ; measure foam in situ AW ; before it collapses ; instead of ruler ; which moves against tube ; **repeats** ; average ; same size cubes ; same conditions generally / same apparatus ; measurement of volume of hydrogen peroxide ; use accurate measurement from burette / AW ; stopwatch / automatic system / monitoring system / computerised ; alarm ; support apparatus ; better view ; hands free ; tissue settles on bottom of flask ; stirring device / shaking or all not shaken ;	[max 5]	
	[Total: 18]		

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Question	Mark scheme	Mark	Guidance **A** = accept, **R** = reject **I** = ignore **AW** = alternative wording
2 (a) (i)	ruled, neat table ; 4 columns with units ; 6 rows (with units) ;	[3]	
(ii)	completed table ; ; ;	[3]	one mark for each column of the table
(iii)	**A** labelled axes with units and orientation ; **S** scale to fill half grid ; **K** key ; **P** accurate plot ; **L** line ;	[5]	
(iv)	*description* starting temperature (in degrees C) / same / different ; which tube lost most heat ; which tube lost least ; *explanation* heat trapped / insulation ; (still) air = good insulation ; linked to own results ; uncovered tube loses most heat / not insulated / naked ;	[max 5]	paper or foil

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(b) (i)	*drawing*: 5 cm + **;** details barbs / down **;** point of attachment **;** *label*: attachment / filament / AVP **;**	[4]	**A** portion of the feather downy Credit a suitable shape even if unlabelled **A** quill
(b) (ii)	W1 insulating **;** trap heat **;** W2 flight / fly / flying / shape / air resistance **;**	[2]	**A** keep bird warm **AW** / reference to trapped air / / maintain bird's temperature **A** reference to pushing against air / strong / stiff
	[Total: 22]		

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