## MARK SCHEME for the October/November 2013 series

## 9700 BIOLOGY

9700/36

(Advanced Practical Skills 2), 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 October/November 2013 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.



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Mark scheme abbreviations:

Mark Schen	
;	separates marking points
1	alternative answers for the same point
R	reject
Α	accept (for answers correctly cued by the question, or by extra guidance)
AW	alternative wording (where responses vary more than usual)
<u>underline</u>	actual word given must be used by candidate (grammatical variants excepted)
max	indicates the maximum number of marks that can be given
ora	or reverse argument
mp	marking point (with relevant number)
ecf	error carried forward
I	ignore

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1 (a) (i)	<ul> <li>a) (i) B volume same as sample or B volume more than sample + temperature 80 °C t 100 °C;</li> </ul>			
(ii)	(G2) trans	els under correct sequence of beakers) 0.2%, + (G3) 0.1%, + (G4) 0.05%; sfers 10 from second beaker to third, third to fourth + cm s 10 cm <sup>3</sup> distilled water / <b>W</b> to each of three beakers;	1 <sup>3</sup> ;	[3]
(iii)	head reco	nised into table; ding (column to left of data or top row) time (/) sec headed) percentage concentration of reducing sugar; rds results according to instructions i.e. for 0.4% and th ect pattern of results: highest concentration shorter time rds all results as whole seconds;	ree other conc	entrations;
(iv)		ect E has the shortest time; ect % estimate for E;		[2]
(v)	sam	of iodine solution; pling at equal time intervals; until iodine remains same colour;		[3]
(b) (i)	sugar) produced / $\mu$ moles min <sup>-1</sup> ; ( <i>x</i> -axis) 10 to 2 cm labelled each 2 cm + ( <i>y</i> -axis) 20 to 2 cm labelled each 2 cm; correct plotting of five points as small cross or dot in circle;			
	ruleo	d lines through the 5 points;		[4]
(ii)	as %	6 of beads with iron sulfate increases mass of reducing	sugar decrease	es; [1]
(iii)		sulfate inhibits reaction; s active site or binds to enzyme or fewer Enzyme-Subs	trate Complexe	es; [2]
				[Total: 21]

Page 4		Mark Scheme	Syllabus	Paper
	0	GCE AS/A LEVEL – October/November 2013	9700	36
(a)	do not gi • any • drav • any	and quality; <i>ive mark if</i> shading vn over print of question ruled lines ller than 50mm at widest point of wall		
	or if any is to has has no cells draws at innermos	than 4 lines or 3 lines + 1 enclosed area part of line o thick any feathery or dashed lines or gap in line any overlaps + only part of wall; least 6 lines or 5 lines + 1 enclosed area; st layer thin + draws at least 6 lines or 5 lines + 1 enclosed el line + labels lumen;	sed area;	
(b)	) drawing	and quality;		
	<ul> <li>any</li> <li>drav</li> <li>any</li> <li>encl</li> </ul>	ive mark if shading vn over print of question ruled lines osed area smaller than 30mm at widest point than 4 enclosed areas		
	<ul><li>is to</li><li>has</li></ul>	<i>part of line</i> o thick any feathery or dashed lines or gap in line any overlaps		
	draws at draws at	l enclosed areas; least 4 nuclei; least 2 nuclei that are not circular or oval; el line + labels nucleus;		

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- (c) (i) correct measurement of Y (in mm 119 or 119.5 or 120 or 120.5 or 121 or cm 11.9(0) or 11.95 or 12(.0) or 12.05 or 12.1(0))
   + Z (in mm 16 or 16.5 or 17 or 17.5 or 18) or cm 1.6(0) or 1.65 or 1.7(0) or 1.75 or 1.8(0); correct precision with mm or correct precision with cm; shows ratio correctly; [3]
  - (ii) correct observable feature e.g. large lumen;

- [1]
- (iii) mp1 organise as a table with <u>three</u> columns or rows separated by lines
   + two columns headings N1 / slide and Fig 2.2 in any order
   + third column or row contains list of features;
   mp2 includes at least one similarity;

mp	feature	N1 /slide	Fig. 2.2
mp3	lumen	present large	present large;
mp4	more than one tissue layer	present	present
	or	or	or
	thickness of wall	thick	thick
	Or incompany of law or	Or their	Or this
	innermost layer	thin	thin;
mp5	(lumen) shape	rounded or 'C' 'U' shape or irregular or folded	oval or circular or regular or not folded;
mp6	cartilage / chondrocytes	present	absent;
mp7	ref. to layers e.g. number of layers e.g. air spaces	more 3 present	less 1 absent;
mp8	contents or valve or nucleus	nothing absent present	present present absent;
mp9	ref. to thickness of wall e.g. ratio of thickness of any wall to lumen e.g. outer wall ( <b>Z</b> )	thinner or thicker	thicker or thinner;

[max 5]

[Total: 19]