CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the October/November 2013 series

9700 BIOLOGY

9700/34 Paper 3 (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.

CAMBRIDGE
International Examinations

Mark scheme abbreviations:

;	separates marking points
/	alternative answers for the same point
R	reject
A	accept (for answers correctly cued by the question, or by extra guidance)
AW	alternative wording (where responses vary more than usual)
underline	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

© Cambridge International Examinations 2013

1 (a) (i) reducing sugar or non-reducing sugar
or
named examples glucose, fructose, sucrose; [1]

(ii) vol(ume) of Benedict's;
temp(erature);
cm^3 or ml(s) + whole number or to 0.5, at least 1, up to 15 + (temperature of Benedict's waterbath) whole number or to 0.5 80 to 100; [3]

(iii) 'before' labelled above 'after';
do not give mark if both levels below the top of Visking tubing which contains **P** or if both levels drawn above Visking tubing; [2]

(iv) organised into table;
heading (column to left of data or top row) time (/) min(utes) + (any column / row headed) (observation of) colour (change) or time (to first colour change /) s(econds);
records results according to instructions; i.e. for 0, 5, 10, 15 minutes;
correct pattern of results between first reading and last;
records results for reducing sugar only (ignore non-reducing sugar);
recorded either as colour
can have only green or yellow or orange or red or brown or any combination; **I** *brick*
or
as whole numbers with units s or sec [5]

(v) reducing sugar(s); [1]

(vi)

idea of at 5 mins	*+ compared to end / 15 mins where*
no change or negative or more time to change or example of lower colours	change in colour or positive or less time to change or example of red or brown;

[1]

(vii) *idea that*
times would become closer together or about the same or no quicker / faster
or
more precipitate or more red or darker red
or
colour changes quicker; [1]

© Cambridge International Examinations 2013

(viii) mp1 (independent variable)
(using reducing sugars or named reducing sugar / glucose / standard solutions)
at least 5 sugar concentrations
or
at least five examples of concentrations;
mp2 (how made)
serial dilution or simple dilution or described method for making different concentrations;

mp3 (dependent variable)
idea of
compare results / colour of plant extracts / samples / unknown with known (standard) solutions; [3]

(b) (*x*-axis) type of fruit + (*y*-axis) percent(age) or % (of) sugar(s);

(*x*-axis) even bar widths up to 2 cm + (*y*-axis) 2.0 to 2 cm labelled each 2 cm except label at origin of 0;

correct plotting of each bar with
- horizontal line
- ruled;

bars + quality + labels;
- bars must have a space between
- all vertical bar lines drawn (including on axis if used), meet horizontal line, ruled lines not too thick
- any clear labels must be directly below correct bar or inside bar or shaded with key [4]

[Total: 21]

2 **(a)** drawing + quality (plan of stomach wall);
do not give mark if
- any shading
- drawn over print of question
- any ruled lines
- smaller than 50 mm at widest point on wall
- less than 4 lines or 3 lines and 1 enclosed area

or if any part of line
- is too thick
- has any feathery or dashed lines or gap in line
- has any overlaps

no cells + only part of wall;
smooth layer at top + lowest layer is thicker than all other layers;
uses label line and correct difference (e.g. lowest layer) thickest or folds; [4]

© Cambridge International Examinations 2013

(b) (i) correct measurement of line **Y**;
60 or 60.5 or 61 or 61.5 or 62 or 62.5 or 63
or
6(.0) or 6.05 or 6.1 or 6.15 or 6.2 or 6.25 or 6.3;

correct precision with mm or with cm;

shows length of **Y** divided by 310;

shows correct conversion of either (mm to μm) × 1000 or (cm to μm) × 10 000 [4]

(ii) feature + how this would increase absorption;
e.g. folds increase surface area [1]

(iii) mp1 organise as table with three columns or rows separated by lines + two columns headed **M1** / slide and Fig 2.1. in any order + third column or row contains at least one feature;

mp	feature	**M1** / slide	Fig 2.1
mp2	folds number or spacing	more or lots or many close together	few(er) or not many or about 2; further apart;
mp3	folds shape or length	thin(ner) or narrow(er) or long(er)	thick(er) or wide(r) or short(er);
mp4	(cell) packing or shape	close together long or thin(ner)	further apart round(er) or thick(er);
mp5	number of layers	more	less or none;
mp6	goblet cells / **X**	few(er) or no(ne) or absent	more or lots or yes or present;

[4]

(c) (i) correct label to goblet cell; [1]

(ii) drawing and quality;
do not give mark if
- any shading
- drawn over print of question
- any ruled lines
- smaller than 60 mm across widest point of largest cell
- less than 6 outer enclosed areas

or if any outer lines of enclosed areas are
- too thick
- feathery or dashed or gap in line
- have tails or overlaps

only three whole cells drawn + one goblet cell + drawn as single touching group;
(nucleus of cell below goblet cell) touches cell membrane adjacent to goblet cell + triangular area;
triangular area drawn under goblet cell;
uses label line and labels nucleus; [5]

© Cambridge International Examinations 2013