UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2011 question paper

for the guidance of teachers

5090 BIOLOGY

5090/32   Paper 3 (Practical Test), 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 must be read in conjunction with the question papers and the report on the examination.

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1 **(a)** **(i)** heat solution with Benedict's solution;
equal volumes of each;
changes colour from blue to *yellow/*orange/red;
positive – presence of reducing sugar; [max 3]

   (ii) **S1** – reducing sugar present; [1]

   (iii) heat with Benedict's solution and colour changes to green/stays blue/no change
with little or no reducing sugar present; (i.e. green for little or blue/no change for no
reducing sugar) [1]

   (b) **(i) and (ii)**

Table 1.1

	length of potato strip / cm		
	A	**B**	**C**
initial length	5.0	5.0	5.0
measured length			
change in length			

Allow 1 mark for correctly completing two columns and 2 marks for completing
three columns (including + / - signs in the change in length column) [max 2]

   (iii) **A** – **S1** solution – decreased length;
exosmosis / absorbed water from potato / AW;
B – **S1** and water – stayed nearly the same;
water in = water out / AW;
C – water – potato absorbed water – increased in length;
endosmosis; [max 4]

[Total: 11]

2 (a) (i)

Table 2.1

	volume of vitamin C solution / cm^3		
	1st reading	2nd reading	3rd reading
initial volume			
final volume			
volume used to make the blue colour disappear			

Decimal places given at least in one of the columns [3]

Practical Test

(ii) calculate difference between original and final volumes to complete last row in Table 2.1 – this will be based on results in table; [1]

(iii) comment on reliability / accuracy / minimize errors; [1]

(iv) mean value (units) based on values in Table 2.1; [1]

(b) (i)

Table 2.2

	volume of **S2** / cm^3		
	1st reading	2nd reading	3rd reading
initial volume			
final volume			
volume of **S2** used to make the blue colour disappear.			

Decimal places given in at least one of the columns [3]

(ii) volume difference; [1]

(iii) mean value (units) based on values in Table 2.2; [1]

(iv) **S2** greater or less than vitamin C solution; [1]

(c) (i) X names and bars spaced equally on *x*-axis;
A axes orientation and label;
S scale on *y*-axis to fill most of grid;
P plot;
B bars not touching; [max 4]

(ii) 3100 ÷ 50 = 62 times / greater; [1]

(d) fruits collected / harvested at same time;
conditions of storage – dark; cool;
sample at regular intervals / every week etc;
squeeze / extract juice;
measure volume;
test with DCPIP;
calculation/plot graph/tabulate
repetition of sample;   [max 5]

(e) prevent scurvy / bleeding gums / AW;
cannot be made by body;   [max 1]

                                                                                    [Total: 23]

3 (a) (i) drawing: larger than specimen with clear outline / no shading;
attachment end detail;
correct number of parts;
claw at end;   [4]

(ii) front leg length and back leg length with units;
ratio expressed;   [2]

                                                                                     [Total: 6]

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