## 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

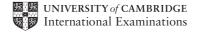
Paper 3 (Practical Test), maximum raw mark 40

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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		
	Α	В	С
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]

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## 2 (a) (i)

Table 2.1

	volume of vitamin C solution / cm <sup>3</sup>		
	1 <sup>st</sup> reading	2 <sup>nd</sup> reading	3 <sup>rd</sup> 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;

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

[1]

[1]

(b) (i)

Table 2.2

	volume of <b>S2</b> / cm <sup>3</sup>		
	1 <sup>st</sup> reading	2 <sup>nd</sup> reading	3 <sup>rd</sup> reading
initial volume			
final volume			
volume of <b>S2</b> 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)  $3100 \div 50 = 62 \text{ times / greater}$ ;

[1]

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(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]