

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**

International General Certificate of Secondary Education

**MARK SCHEME for the November 2005 question paper**

**0610 BIOLOGY**

**0610/05 Paper 5**

**Maximum mark 40**

This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which Examiners were initially instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began. Any substantial changes to the mark scheme that arose from these discussions will be recorded in the published *Report on the Examination*.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

The minimum marks in these components needed for various grades were previously published with these mark schemes, but are now instead included in the *Report on the Examination* for this session.

- CIE will not enter into discussion or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the November 2005 question papers for most IGCSE and GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Page 1	Mark Scheme	Syllabus
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- 1 (a) (i) increase in length;
- (ii) L use of ruled lines for columns and rows;  
H after (table heading);  
U units (mm or cm) in heading; [3]
- (iii) records for after soaking; [1]
- (iv) mean calculated correctly; [1]
- (v) appropriate ref. to sugar in cells;  
(water moves by) osmosis;  
direction;  
cells may already be turgid;  
insufficient time for change to occur; [max 2]

(b) (i)

potato chips soaked in distilled water	P2
firm	soft/bendy;
not slimy	slimy;
granular	smooth;
AVP	AVP;

[max 2]

- (ii) (distilled) water has no sucrose/solution contains sucrose;

**Allow answers for reverse argument if appropriate**

surrounding solution, weaker/higher water potential, than inside cell;  
water moves into cells;  
by osmosis;  
to equal concentrations/down water potential gradient;  
cells expand;

[max 3]

- (c) (i) +1   -2   -4   -5   -5  
1 mark for correct numbers;  
1 mark for correct +/-; [2]
- (ii) D data plotted;  
C points joined by, clear line/curve of best fit;  
**(A) logical extrapolation**  
**(R) line to (0,0) or to left hand corner of graph** [2]
- (iii) value where his line crosses x axis; (read off graph) [1]

[TOTAL 18]

Page 2	Mark Scheme	Syllabus	er
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- 2 (a) (i) Drawing - clear outline S1;  
at least 5 cm in one direction;  
cotyledon and embryo shown;  
testa shown;
- Labels - cotyledon;  
plumule;  
radicle;  
testa;
- [max 6]**
- (ii) length of drawing measured correctly (+/- 2 mm) **with units and** clear measurement line shown;
- correct answer = 2 ticks = 2 marks**  
"drawing length ÷ specimen length";  
correct x magnification; **[3]**
- (b) (i) add iodine solution;
- add Benedicts reagent;  
heat/boil;
- reference to appropriate volumes;  
divide sample; **[max 4]**
- (ii) turns blue/black; **[1]**
- turns, orange/red; **[1]**
- (c) starch;
- starch and reducing sugar;
- reducing sugar; **[3]**
- (e) food store in seed is starch;  
starch converted into sugar;  
during germination;  
sugar transported to, shoots/roots;  
reference to enzymes;  
lack of water before germination;  
starch insoluble;  
AVP;; **[max 4]**

**[Total 22]**