UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2012 question paper

for the guidance of teachers

5090 BIOLOGY

5090/61 Paper 6 (Alternative to Practical), maximum raw mark 40

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1 (a)

	volume of dough / cm^3	
	A	**B**
Initial	20	20
Final	51	34
Change	31	14

[3]

(b) (i) volume / height (increases) more in A than B ;
more bubbles / gas in A / bubbles /gas evenly distributed in A or converse ; [2 max]

(ii) respiration / respiring ;
aerobic / anaerobic ;
carbon dioxide (CO_2) given off ;
(idea of) trapped in dough increasing volume AW ; [3 max]

(c) 2 or more samples (of A) used / AW ;
same start volumes / amounts / height of dough used ;
at range of temperatures / different temps ;
suitable temperatures identified ;
left for same length of time ;
change (in volume) measured / compared AW ;
repeat / replicate / calculate the mean ;
AVP ; [5 max]

[Total: 13]

2 (a) Drawing
five leaflets drawn ;
clean lines, good proportions, at least 7cm length ;
midrib + veins well drawn on at least one ;

serrated margin drawn as a continuous line on one ; [4 max]

Labels
lamina / blade / margin ;
midrib / veins ;
petiole / leaf stalk ; [L2 max]

(b) photosynthesis:
(green) chlorophyll + ref to light (absorption) ;
large surface area + ref. to light or gases ;
attached to stem / veins / midrib + transport of correctly named materials ;
leaf thin + fast diffusion / light penetration / gaseous exchange ; [3 max]

(c) (i) reference to leaf closing over insect / leaf margins forming trap AW ; [1]

(ii) nitrate / (named) nitrogen-containing compound / phosphate ; [1]

(iii) enzymes / proteins / nucleic acids / DNA / cell membrane / chlorophyll / ATP ; [1]

[Total:12]

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3 (a) (i) stamen / anther / pollen sac correctly indicated and named ; [1]

(ii) stigma correctly identified and named ; [1]

(b) tissue prepared or sample taken ;
Benedicts added ;
heated / warmed ;
colour changes described ;

use of water bath or another safety feature ; [5]

(c) (i)

time in hours	length / mm
0.0	(0)
2.0	18–20
4.0	23–25
6.0	28–30
8.0	34–36
10.0	41–43

[2]

(ii) time on *x* axis, length on *y* ;
grid fully used and axes fully labelled with linear scales ;
plotting correct ;
good, neat line of best fit drawn ; [4]

(iii) growth (rate) faster (at first) becoming constant / AW ; [1]

(d) towards chemical / hormone (in ovule) ; [1]

[Total: 15]

[Paper total: 40]

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