UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS GCE Ordinary Level

MARK SCHEME for the May/June 2012 question paper for the guidance of teachers

5090 BIOLOGY

5090/32

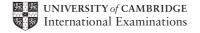
Paper 3 (Practical Test), maximum raw mark 40

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1 (a)

	height of dough / mm	
	S1	S2
initial height		
final height after 30 mins		
change in height		

- 1 initial two readings should be similar (within 5 mm)
- 1 for final two readings;
- 1 change according to figures given;
- 1 change in height positive(+) to be given in S1.

[4]

(b) (i) S1 increased more / S2 very little change;

Credit for use of figures;

shows bubbles / gas / froth in S1 (on the surface of dough) or converse in S2; meniscus.

[max 3]

(ii) aerobic / anaerobic;

respiration;

release of carbon dioxide / gas;

trapped inside the dough causing it to rise;

more S1 / ORA;

[max 3]

(c) same dough mixture;

at least three of temperatures within acceptable range;

incubate the yeast mixture at set temperature;

measure height (by levelling top of mixture); compare;

repeat to increase reliability;

control without yeast;

calculate mean;

[max 5]

[Total: 15]

2 (a) Drawing – clear outline of leaflets (minimum of three) attached to a branch (no shading); proportion – minimum of 7 cm;

lamina (midrib double line)+ petiole; serrated margin;

[max 3]

Labels - lamina / blade; midrib / veins,

petiole / leaf stalk; bud / stipule at base

[max 2]

(b) Photosynthesis;

Flat / thin leaf plus ref to gaseous exchange / diffusion / light penetration;

(Green) chlorophyll plus ref to absorption of light;

Leaf with large surface area plus ref to gas exchange / light;

Attachment – transport (if correct) to stem / veins.

[max 3]

(c) Reference to the leaf closing around or over insect / leaf margins forming trap / ref to pointed structures [1]

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(d) (i) Nitrate / nitrogen containing compound / phosphate; Not nitrogen alone [1]

[1]

(ii) Enzymes / proteins / nucleic acids / DNA / cell membrane / forms new protoplasm / growth / chlorophyll;

[Total: 11]

3 (a) (i) Stamen / anther / pollen sac correctly named / indicated

[1]

(ii) Stigma / stigmatic surface correctly identified / named

[1]

(b) (i) Prepare solution / tissue / cut up / grind in water;

Add Benedict's solution; heat; one safety feature e.g. in water bath / use of tongs / gloves / lab coat;

Expected colour change if positive;

[max 4]

A – brown qualified e.g. reddish (for orange).

R – incorrect colour change

A - use of clinistix - max 3 marks

(ii) Green / yellow / red;

[1]

(c) (i)

time / 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]

A – ranges shown but units not required.

A – 2 marks for no errors

A – 1 mark for one error

(ii) Orientation of axes with time (t) on X axis & length on Y axis; Clear plots to cover at least half of the grid and with zero indicated; Neat line drawn (connections ruled / line of best fit).

[3]

(iii) Growth faster in first 2 hours (at first) then becoming slower / constant;

[1]

(d) Towards chemical / hormone (in ovule);

[1]

[Total: 14]