UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS **GCE Ordinary Level**

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for the guidance of teachers

5090 BIOLOGY

5090/31

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.

Cambridge will not enter into discussions or correspondence in connection with these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2012 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Initial height height of dough / mm Initial height Image: State Sta	<u> </u>		neme: Teachers' version Syllabus		S. Y	
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. (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] 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 3] 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 3] Photosynthesis; Flat / thin leaf plus ref to gaseous exchange / diffusion / light penetration; (Green) (horophyll plus ref to gaseous exchange / diffusion / light; Leaf with large surface area plus ref to gas exchange / light; Attachment - transport (if correct) to stem / veins. [max 3]		GCE O I	LEVEL – May/June	2012	5090	Pac
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petiole / leaf stalk; bud / stipule at base[max 2Photosynthesis; 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 2	proporti lamina (on – minimum of 7 midrib double line	⁷ cm;)+ petiole; serrated		hed to a branch (no shading); [max 3]
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						[max 2]
Poteronee to the loof eleging around an ever insect / loof meaning forming them / refts resident	Flat / thi (Green) Leaf wit	n leaf plus ref to g chlorophyll plus re h large surface are	ef to absorption of li ea plus ref to gas ex	ght; kchange / light	•	[max 3]
Reference to the leaf closing around or over insect / leaf margins forming trap / ref to pointed	(c) Referen	ce to the leaf clos	ing around or over i	nsect / leaf ma	argins formina tra	p / ref to pointed

structures

[1]

			Mary .
Page 3		Mark Scheme: Teachers' version	Syllabus r
v		GCE O LEVEL – May/June 2012	5090
(d) (i) (ii)	Not	ate / nitrogen containing compound / phosphate; nitrogen alone ymes / proteins / nucleic acids / DNA / cell membrar	Syllabus 5090 ne / forms new protoplasm /
3 (a) (i)	Ū	vth / chlorophyll; nen / anther / pollen sac correctly named / indicated	[¹] [Total: 11]
(~) (!)	e tain		. [·]
(ii)	Stigr	ma / stigmatic surface correctly identified / named	[1]
(b) (i)	Add glove Expe A – I R – I	pare solution / tissue / cut up / grind in water; Benedict's solution; heat; one safety feature e.g. in es / lab coat; ected colour change if positive; brown qualified e.g. reddish (for orange). incorrect colour change use of clinistix – max 3 marks	water bath / use of tongs / [max 4]
(ii)	Gree	en / yellow / red;	[1]

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	

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);

[Total: 14]

[1]

[2]