

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

General Certificate of Education O Level

MARK SCHEME for the June 2005 question paper

5090 BIOLOGY

5090/03

Paper 3 (Practical Test), 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.

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JUNE 2005

GCE O Level

MARK SCHEME

MAXIMUM MARK: 40

SYLLABUS/COMPONENT: 5090/03

**BIOLOGY
Paper 3 (Practical Test)**



Page 1	Mark Scheme	Syllabus	Paper
	GCE O Level - JUNE 2005	5090	3

- 1 (a) (i) 200 - 280; mm; (or equivalent cm.) [2]
- (ii) image of that part of field of view for one blind spot;
falls on receptors of other eye;
blind spots do not coincide;
brain 'fills' the blank; A.W [up to 2]
- (b) (i) Drawing marks: [D.4]
- 1 At least 6 cm, clear and realistic
 - 2 Lids and lashes clear
 - 3 Iris and pupil accurately shown
 - 4 Vestigial eyelid shown on right
- Labels: (clearly correct)
cornea; iris; pupil; lid(s)/lashes; [up to 3]
- (ii) External size of iris same in both drawings;
pupil smaller in second drawing; [2]
- (iii) Pupil smaller in brighter light/after eye opens;
By contraction of circular muscles;
Of iris;
And relaxation of radials;
Limits entry of light;
Prevents dazzling;
OVP; [up to 6]
- [Total: 19]
- 2 (a) (i) To soften/kill cells/destroy enzymes; [1]
- (ii) To decolourise leaf/remove chlorophyll;
Enabling result of test to be seen; [2]
- (iii) Leaf goes soft/limp; [1]
- (iv) S1 and S2 spread on labelled tile;
iodine (solution) added; [2]
- (v) In table:
S1 turns (blue/)black, starch present;
S2 turns brown (etc.)/less black, no/less starch; [2]
- (vi) S2 contains no starch, turns brown;
because it requires CO₂ for photosynthesis/starch formation; [2]
- (b) (i) In range 32 - 34; [1]
- (ii) Graph marks: [5]
- 1 Rate of production on y axis
 - 2 Axes labelled correctly
 - 3 Scales correct
 - 4 Plots accurate and clear
 - 5 Line of best fit/ruled connections

Page 2	Mark Scheme	Syllabus	Paper
	GCE O Level - JUNE 2005	5090	3

- (c)** Draw the leaf to record green area;
Decolourise the leaf/remove chlorophyll;
Add iodine/carry out starch test;
Compare result with drawing;
Black area coincides with original green;
Showing chlorophyll necessary for photosynthesis;
White area acted as control;

[up to 5]

[Total: 21]

[Total for paper: 40]