UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the June 2005 question paper

0610 BIOLOGY

0610/06 **Paper 6 (Alternative to Practical), 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*.

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

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

Grade thresholds for Syllabus 0610 (Biology) in the June 2005 examination.

	maximum mark available	minimum mark required for grade:			
		A	C	E	F
Component 6	40	28	19	13	10

The threshold (minimum mark) for B is set halfway between those for Grades A and C.
The threshold (minimum mark) for D is set halfway between those for Grades C and E.
The threshold (minimum mark) for G is set as many marks below the F threshold as the E threshold is above it.
Grade A* does not exist at the level of an individual component.

June 2005

IGCSE

MARK SCHEME

MAXIMUM MARK: 40

SYLLABUS/COMPONENT: 0610/06

BIOLOGY
Paper 6 (Alternative to Practical)

1 (a) (i) Completion of table

tissue used	volume of oxygen collected from sample/cm³			
	samples			
	A	B	C	D
potato	4.5	6.5	0	0
liver	8.0	10.0	0	0

Correct values only. Ignore units in table. One mark per row;; **[2]**

(ii) **L** - labeling; [x - axis A, B, C, D clearly labelled] [y - axis volume of O_2 evolved cm^3]
S - suitable scale; [must fill more than half of grid, space for all letters even if no bar for C and D]
P - plotting accuracy; [+- 0.5 mm i.e. half a square - all correct for A and B samples]
B - bars separate and same width; [**R** if bars touching] **[4]**

(iii)

	liver	potato
1 speed of reaction	faster more vigorous more reactions	slower less vigorous less reactions
2 volume of gas/O_2 produced	higher/larger/more	lower/less no O_2 is definite - R
3 calculation	1.8 times more almost double 3.5cm^3 more	1.8 times less almost half 3.5cm^3 less

Accept comparison or comparative point - er. **[Max: 2]**

(iv) **1** A one piece and B many (small pieces);
2 link with surface area [A smaller/B larger];
3 interior of large piece not reacted or converse or more enzyme/catalase released from small pieces/more reactant or more collisions if appropriate/AW; **[Max: 2]**

(b) control for comparison to show an enzyme was involved/enzyme becomes denatured/deactivated/destroyed/AW; **[1]**

(c) rekindle a glowing splint/glow brighter; **[1]**

[Total: 12]

2 (a) drawing: **O** clear outline; [single line - allow detail of spots but no shading]
S good size and correct shape; [detail of petals and overall shape]
A detail of stamens; [3 stamens, accurate and double line for filament]
G detail of carpel; [bilobed stigma and above stamens and double structure below stigma down towards ovary] **[4]**

Labels: **X** correct location and label line to anther;
Y correct location and label line to stigma;
Z correct location and label line to style; **[3]**

(b) (i) reducing sugar: add Benedict's [reagents]; heat/boil/warm;
starch: add iodine (solution)/iodine/I_2 **[3]**

(ii) from blue to green/yellow/orange/red; **[1]**

(c) (i) size of grains with unit [mm or cm] accept range 52-57 mm/÷magnification - 200;
actual size in mm or cm; accept range 0.26 to 0.285 mm **[2]**

(ii) rough surface/hooks/not smooth/spikes/thorns/horns/projections; **[1]**

(d) (i) **1** choice of one type/same species of flower with different colour varieties/artificial flowers/coloured cards; [not petals alone].
2 arrange flower(s) in separate colour blocks/in separate areas/places;
3 record the number of visits/observe where most insects visit; [easy point]
4 set time period specified e.g. minutes or hours; ['days' are too long]
5 keep other variables constant e.g. water/turgidity of flowers/background/time of day/AVP;
6 repeating experiment; **[Max: 4]**

(ii) odour or scent or smell/shape e.g. resemble female insect/detail of flower to attract insect e.g. honeyguides or markings on petals/brightly coloured bracts or sepals/reference to UV light for moths/AVP; **[1]**

[Total: 19]

3 (a) **(i)** two from:

	seedling in light/clear box	**seedling in dark/black box**
leaves/cotyledons	large broad ignore thick leaves with petiole/stalk [not colour]	small/narrow ignore thin leaves without petiole/stalk
stem/stalk	wider/shorter/thicker	narrow/longer/thinner
roots	more	less
growth	normal	etiolated
whole seedling	shorter/thicker apical tip/bud	taller/thinner no apical tip/bud

[Max: 2]

(ii) any four from:

1 idea of repeats/more seeds/more boxes;
2 grown under same temperature;
3 same species/same number/same age or size;
4 same watering/humidity/AW;
5 grown in same substrate/cotton wool;
6 measurements – calculate average/mean; **[Max: 4]**

(b) any three from:

1 grows/curved/bending towards light slit/light source; [not moves]
2 unequal growth/AP;
3 shows phototropic response;
4 +ive/positive phototropic response to light;
5 reference to auxin/AP **[Max: 3]**

[Total: 9]