

JUNE 2002

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK : 40

SYLLABUS/COMPONENT : 0610/6

**BIOLOGY
(ALTERNATIVE TO PRACTICAL)**



Page 1	Mark Scheme	Syllabus	Paper
	IGCSE Examinations – June 2002	0610	6

Question

1

- (a)(i) *the contents of the tube increase in volume / swell / turgid; gas/ carbon dioxide bubbles visible inside the tube/ pass through tube; R gas released or produced.* [3]
limewater around tube becomes cloudy;
- (ii) *anaerobic respiration / fermentation; R diffusion* [1]
- (b)(i) *no protein present;* [2]
large molecule unable to diffuse through wall of tubing;
[no direction needed]
- (ii) *green / yellow / orange / red/ brick red / brown; LIST RULE* [1]
- (iii) *breakdown of sucrose by yeast / enzymes AW;*
molecules of glucose/ reducing sugar / simple sugar diffuse through wall of tubing; R. sugar unqualified.
high concentration inside to low concentration outside/ to make concentration equal; [direction important, independent point] [3]

[total: 10]

Question 2

- (a) *drawing -S appropriate size to fill space;*
[must be larger than original]
P proportion of body to shell accurate;
*D detail of head end **and** shell;* [3]

Two from:

labels – shell / exoskeleton;

head / foot;

eyes on tentacles / stalks;

unsegmented body;

ignore antennae, soft body, slimy skin, no marks for negative structures.

MAX
[2]

drawing of a different animal = 0

- (b) *molluscs;* [1]

[total: 6]

Question 3

- (a)(i) *young seedling will be wilted AW;*
R ref to mineral deficiencies ,unhealthy, stunted growth, plasmolysed, yellowing. Do not award for comments on roots alone.
young seedling should be erect and leaves supported normally / same as before / normal / healthy upright/ AW; [2]
- (ii) *two cotyledons / two seed leaves / cotyledons;*
network of veins; Max
broad leaves; [2]
ignore roots. Read all through the whole answer.
- (b) *count the whole squares covered by the leaf;*
combine the number of part squares covered by the leaf;
ignore doubling for both surfaces [2]
- (c)(i) *correct completion of tally chart;;*
one mark for each column correct. Allow blank entries for 0 [2]
- (ii) *A label axes; y axis – number of leaves, frequency, leaf area from tally table heading and x axis – class size in cm³*
S accurate and evenly spaced scale;
P accurate plotting; Ⓐ error carried forward from tally chart [5]
K distinguish between the two sets of data;
C columns touching and ruled neatly/ equal width / accept regular space for two sets of data where one is missing;
- (d)(i) *reference to same age or stage of development / same leaf back from growing tip / same species/ kind for both sets of seedlings/ larger sample number / count more leaves/ AW;* [1]
- (ii) *to capture available light / trap light / more light / AW for photosynthesis;* [1]
ignore reference to carbon dioxide

[total: 15]

class size in cm ²	shaded site	sunlit site
2.5 - 2.9	0	III
3.0 - 3.4	0	III
3.5 - 3.9	0	III
4.0 - 4.4	II	1
4.5 - 4.9	III	1
5.0 - 5.4	III	0
5.5 - 5.9	II	0
6.0 - 6.4	1	0

Page 3	Mark Scheme	Syllabus	Paper
	IGCSE Examinations – June 2002	0610	6

Question

4

(a)

*breath / blow through tube;
breath out fully;
water displaced or air collected;
measurement / ref to scale on bell jar;
repeat readings;*

Max [3]

ignore counting bubbles.

(b) 3 from:

- * *body mass/ surface area / height / size / volume/ gender;*
- * *training / exercise / fitness / athlete / AW;*
- * *lifestyle / health / environment eg live in towns;*
- * *lungs / emphysema / infected lungs / asthma / TB / other named lung problem;*
- * *smoking / smoke induced illness;*

[3]

ignore effects of alcohol / diet / lung volume/drugs/genetics

(c) **M** *method / principle / correct for both inhaled and exhaled sample of air;*

W *workable technique;*

T *test for carbon dioxide – limewater, hydrogen carbonate indicator [red to yellow],
or
volume change using KOH or NaOH absorber of carbon dioxide;*

[3]

[total: 9]