

JUNE 2003

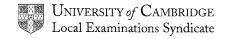
INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 40

SYLLABUS/COMPONENT: 0610/06

BIOLOGY (Alternative to Practical)



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1 (a) Two from:

temperature or warmth or heat/[same type of] [amount of] yeast/type of flour/same size measuring cylinder/same mass or weight of dough/ [same quantity of] [type of] sugar [2]

- (b) (i) Graph:
 - O orientation of axes and label of axes plus units;
 - **S** use of appropriate and even scale to fill half of the grid;
 - **P** plotting data A; B; C;
 - **K** key for separate date; max [5]
 - (ii) Line A rises steadily;

Line B - does not rise/rises slightly/at a constant level;

Line C - rises and flattens; [2 stages] [3]

(iii) <u>80;</u> [1]

- (iv) Two from:
 - 1. comment on volume difference, A more;
 - 2. A has yeast [and B has none];
 - 3. correct ref. to production of carbon dioxide; [2]
- (v) Two from:
 - 1. comment on rate difference/speeding up/faster;
 - 2. substance X present in C [A has no X];
 - 3. reasonable suggestion for role of substance X;

(accept enzyme, catalyst, improver, AW) [2]

Total 15

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2 (a) 2 conditions = 1 mark. No $\frac{1}{2}$ marks.

warmth [correct/suitable temperature/10 to 30°C if specified];

oxygen;

but apply ecf for part (b)

[1]

(b) Three from:

- 1. identification of **one** workable condition **from (a)** for investigation two sets one **with** and one **without**;
- 2. idea of sample size many seeds, a few seeds must be more than one seed for repetition idea;
- 3. some common factor of treatment between the two sets [with and without the condition] under investigation; (equal watering, equal number of seeds, same species AW)
- 4. left to grow for same time period;(if stated minimum 1 + days, accept up to 3 weeks) max [3]

Total 4

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3 (a) (i) Drawing:

clear outline;

correct proportions;

Labels - 2 from:

Tentacles;

eye [to be located at the end of the larger tentacles];

foot [qualified];

shell [dorsal/visceral shell or hump];

unsegmented body;

(ignore reference to negative features)

(ii) Magnification:

Check measurements given are those transcribed into the formula drawing size;

actual size

calculation is correct stated asx 1+ (this must be more than 1 if drawings is as large as fig 3.1) max [2]

(iii) Similarity – one from:

both have tentacles/eyes/same head/shell;

Difference – one from:

A has no large external shell and B has/shell has different shape or comment on shape; AW

(iv) mollusc: [1]

Total: 9

[2]

[4]

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4 (a) (i) introduce a glowing splint/spill (do not award for match will burn/candles lighting/splints that are already burning)

addition of pyrogallol; [1]

(ii) photosynthesis; [1]

(iii) 10 cm^3 ; $10 \div 5 = 2 \text{cm}^3$; [2]

- (iv) Two from, for design of experiment:
 - method for setting up different light intensities; (bright light in introduction - so maybe dimmer or less light but must have detail of how this is to be achieved/distances away from light bulb/AW)
 - describe how to control a factor that may alter rate over a certain time (temperature - heat shield, carbon dioxide by adding hydrogen carbonate/AW)
 - additional feature of design –
 (same time period for comparison of results/eliminate background light, carry out investigation in a darkened room/replicates/ repetition/same piece of pondweed/recovery time between sets of measurements AW)

(b)

	Colour		Explanation
(i)	purple		carbon dioxide used up/
		[1]	photosynthesis [1]
(ii)	red/orange		balance [between photosynthesis
	_	[1]	and respiration] [1]
(iii)	yellow respiration of 3 water shrimps/		
		[1]	produce carbon dioxide [1]

Total: 12