**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**International General Certificate of Secondary Education**

# MARK SCHEME for the October/November 2012 series

## 0610 BIOLOGY

**0610/63** Paper 6 (Alternative to Practical), 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 should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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**1 (a) (i)** arthropod / crustacean; [1]

**(ii)** jointed / segmented limbs / legs;
segmented body;
exoskeleton;

*for crustacean:*
compound eyes;
2 pairs of antennae; [Max: 2]

**(b) (i)**

| damp | dry |
|---|---|
| 20 | 4 |
| 22 | 2 |
| 18 | 6 |
| 14 | 10 |
| 16 | 8 |

[2]

**(ii)**

| | damp | dry |
|---|---|---|
| total | 90 | 30 ; |
| mean | 18 | 6 ; |

[2]

**(c)** pie chart – 2 sectors 3/4 and 1/4;
key / label; [2]

**(d)** preference for humid / damp conditions;
(usually) cooler;
stop drying out;
keep respiratory surfaces moist;
find their food / nutrients in damp conditions;
(damp conditions under objects) give protection from predators / shelter;
AVP; [max 3]

**(e)** same species / type / size / age of woodlice;
all animals healthy / not damaged;
control of (1) variable (e.g. temperature / humidity / apparatus)
AVP; [max 3]

**[Total:15]**

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**2 (a)** **O** outline;
**S** size and proportion;
**D** detail;
**L** label; [4]

**(b)** Measurement: **48** (mm);
Formula: length/magnification / 48/100 / 100 x length = 48;
Calculation: **0.48** (mm) (0.47 – 0.49); [3]

**(c)** floating / buoyant / on surface / AW;
many air spaces / lighter;

gains light for photosynthesis /growth AW;
AVP; [max 2]

**d) (i)** blocks light / so that plant beneath cannot photosynthesise;
lack of space for other plants to grow;
competition for nutrients / minerals;
hyacinth grows rapidly then dies and rots / plants underneath die and rot;
eutrophication;
slows water movement ( leads to silting);
transpiration – dries up water / leads to lack of (pond) water; [max 2]

**(ii)** physical means: clearing / booms;

biological control: introduction of animals / herbivores to eat it / examples;
chemical control: herbicides / pesticides / weed killer;
AVP; [max 2]

**[Total:13]**

**3 (a) (i)** **A –** axes;
**S –** size;
**P –** correct plots;
**L –** line; [4]

**(ii)** line falls;
rate of activity increases / enzyme works faster / more collisions of molecules (as temperature rises) (or vice versa);
line rises;
rate of activity decreases / enzyme denatured (as temperature rise above 50°C);
figures quoted in support;

reference to optimum/best temperature;
AVP; [Max: 4]

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**(b) (i)** increased reliability;
identify / reduce errors / anomalies;
identify the end point clearly;
to check method / technique;
AVP; [Max: 2]

**(ii)** *suggest and explain*

| variable | explanation |
|---|---|
| milk concentration | will alter time to end point |
| milk freshness | pH can be changed – alters enzymes activity |
| type of milk | alters enzyme activity /substrate conc. |
| volume / conc. enzyme | alter amount of reactions vary enzyme rate |
| pH | vary activity of enzyme |

[2]

**[Total: 12]**

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