UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2007 question paper

0610 BIOLOGY

0610/05 Paper 5 (Practical Test), 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.

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.

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1 (a) (i) ***table design***
column/row, with heading for length ;
rows / columns, with headings for S1 and S2 ;

(ii) ***filling in their table***
measurement for 5 x S1 specimens entered into table ;
measurement for 5 x S2 specimens entered into table ;
Accept reasonable measurements. Zero for S1 = 0
units (in headings/main body of table [***at least once in S1 and S2***]) ; [3]

(iii) ***to complete Table 1.1***
Allow ecf. Allow correct rounding.
Reject mean calculated from only 1 measurement.
means calculated (***whole number or 1dp***) ; ; [2]

(b) (i) ***Allow ecf if their measurements are reversed (i.e. if S1 > S2)***

1 germination/development, in S2 in warm ;
2 ref. root development/AW ;
3 leaf/shoot, development/AW ;
4 testa detached/testa split/cotyledons visible/AW ;

5 no/little, development/germination, (of seeds) in S1 in cold ;
6 root/shoot, not extended outside testa/AW ;

7 use of data for comparison ;
8 enzyme activity faster/optimum enzyme temperature, in warm/AW ;
9 detail ; e.g. enzyme link to metabolism
detail of enzyme action
ref. food store [5 max]

(ii) ***Max 2 if temperature kept the same for both groups (i.e. no difference between them)***
same, type/species, of seed ;
same size of dish ;
same volume of water ; (***A***) ***soak for the same time***
keep, in dark/covered with foil/equal light conditions ;
same amount of oxygen ;
(grow for) same period of time ;
same number of seeds ; [3 max]

(c) (i) biuret ; [1]

(ii) ***to complete Table 1.2 [see supervisor's report]***
S1 purple/lilac ;
S3 paler/lighter, purple/lilac ; (***A***) ***blue/green/yellow/no change*** [2]

(iii) ***to follow on from Table 1.2, allow ecf***
S1 has more protein/S3 has less protein ; [1]

[Total: 19]

2 (a) (i) ***drawing ~*** clear outline ;
proportions ; **(*at least 5 cm, with pointed end and blunt end*)**

labels ~ anterior end/mouth/head ; **(*at pointed end*)**
segment ;
(cuticle/outer covering/'skin') colour ; [4 max]

(ii) **(*R*) *use larger specimens***
observe living specimen ;
remove from tube/remove lid/use thinner glass tube/AW ;
good light source ;
hold with, a pin/forceps/AW ;
observe with a microscope ; **(*R*) *magnifying glass***
AVP ; e.g. if moving, make sure that they are dead [2 max]

(iii)

S4	S5	
pale colour	darker colour	;
not/less, shiny	shiny	;
shape described	broader shape	;
segments	segments not visible	;
larger	smaller	;
AVP	AVP	;

[2 max]

(b) (i) insect/arthropod ; [1]

(ii) egg ; [1]

(iii) 6/3 pairs, of legs ;
3 parts to body/head + thorax + abdomen ;
compound eyes ;
1 pair of antennae ;
2/1 pair, of wings ;
jointed limbs ;
exoskeleton ; [3 max]

(c) (i) A axes labelled + units ; **(*temp. °C time days*)**
S orientation [temp on *x* axis] + scale increments equal ;
P plot [of data for S5 to adult only] ; ; ***1 error = 1, 2 errors = 0***
L clear unbroken line [not beyond plot points] ; **(*join dots / best fit*)** [5]

(ii) 1 development quicker at higher temperatures ;
2 figs. [for same part of life cycle at different temp] ;
3 ref. metabolism/enzyme activity/AW ;
4 ref. respiration ;

5 S5 to adult , quicker/takes less time, than S4 to S5 ;
6 large difference at low temp/little difference at high temp ; [3 max]

[Total: 21]