UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the May/June 2010 question paper

for the guidance of teachers

5090 BIOLOGY

5090/61 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 must be read in conjunction with the question papers and the report on the examination.

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

CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

UNIVERSITY of CAMBRIDGE
International Examinations

1 **(a)** **A** is paler/yellow (green), **B** brown/dark/black/blotchy/speckled ;
A is bigger/thicker/fatter/smaller or **B** converse ;
A has thicker stalk or **B** converse ;
A has smoother surface or **B** converse ; [2 max]

(b) **(i)** Graph marks: [4]
1 *x*-axis labelled 'day' (**R** irregular numbering) ;
2 *y*-axis 'mass/g' (n.b. origin label) ;
3 clear, accurate plotting ;
4 line – ruled connections/rules line of best fit/good smooth curve ;

(ii) 54g ; [1]

(iii) drying/dehydration/loss of water/moisture ; respiration ; [2]

(c) **(i)** mix/crush/grind (with water) ;
add Benedict's solution and heat ;
in water-bath ;
colour change to yellow/orange red ; [4]

(ii) sample one banana as ripens/sample bananas of different stages of ripening ;
time period of 2–28 days mentioned ;
equal masses of banana sampled ;
equal volumes of Benedict's used ;
ref. more intense colour change AW ; [4 max]

[Total: 17]

2 **(a)** drawing marks:
well proportioned, head thorax abdomen cleanly drawn, min. length 7 cm ;
6 legs, correct orientation ;
segments shown on leg/antenna ;
antennae, palps and eyes shown correctly positioned ; [4]

labels:
head, thorax and abdomen (2 for 1 mark) ;
antenna(e) (**R** feelers) ;
(compound) eyes ;
leg ;
wing/elytra ; [1 max]

(b) length of beetle in Fig. 2.1 + equivalent length on drawing (if in cm to 1 d.p) ;
correct units at least once ;
correct expression using these figures ;
magnification properly expressed (**R** more than 2 d.p, **R** rounding above 0.2) ;
[4]

© UCLES 2010

(c) **(i)** 60 ; [1]

(ii) small sample/lip above ground level/some escape/marks rub off/AVP ; [1]

(d) **(i)** 50 and 80 ; [1]

(ii) *two of*:
moisture ; temperature ; light (intensity) ; environmental preference ;
availability of food ; avoiding predators ; AVP ; [2 max]

(iii) environmental factors ; weather ; variable behaviour ; population change ; AVP ; [1 max]

(iv) only species in habitat ; ate other captives ; trap designed for ground-living organisms ;
AVP ; [1 max]

[Total: 16]

3 **(a)** **(i)** simple diagram showing these associations:
E to **A** ;
B to **G** ;
C/**D** lined up alongside **F**/**G**/labelled ulna lined up alongside labelled radius ; [3]

(ii) ligaments shown attaching bones at least once ; [1]

(b) **(i)** ligament ; [1]

(ii) ball and socket ; [1]

(c) calcium +
dairy product(s)/eggs/fish (qualified)/apricots/mineral water ; [1]

[Total: 7]

© UCLES 2010