UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Ordinary Level

MARK SCHEME for the October/November 2010 question paper for the guidance of teachers

5090 BIOLOGY

5090/62 Paper 6 (Alternative to Practical), maximum raw mark 40

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1 (a) (i) 6–8 recorded in Table 1.1 ; [1]

(ii) water (into apparatus) from syringe ;
fills capillary tube / replaces air / AW ; [2]

(iii) Graph marks:
1. time on *x*-axis, distance on *y*-axis with correct linear scales ;
2. axes labelled – time of day or time / hours, distance / arbitrary units ;
3. plots clear and accurate ;
4. ruled connections / line of best fit ; [4]

(iv) humidity ;
temperature ;
light ;
air movement / wind AW ; [max 3]

(v) cloud / rain / fall in temperature or wind / stomata closing / experimental error ; [1]

(b) (i) arrow(s) from xylem out through stoma ;
<u>evaporation</u> / water <u>vapour</u> ;
diffusion (into air) / osmosis (cell to cell) ;
water pathway and carbon dioxide pathway labelled / distinguished by key ; [4]

(ii) arrow(s) from atmosphere, through stoma ;
to photosynthetic cell ; [2]

(iii) guard cell ;
mesophyll / palisade / spongy ;
xylem / vessel ; [3]

[Total: 20]

2 (a) (i) Drawing:
1. at least 6 cm, clear and clean ;
2. accurate shape of embryo ; [2]

Labels: <u>radicle</u> ;
<u>plumule</u>
stem or root origin correctly identified ; [3]

(ii) measurements correct with correct units at least once ;
correct expression, drawing size over specimen size ;
allowance for × 0.75 magnification ;
magnification correctly stated – × or times, no more than 2 dp ; [4]

[Total: 9]

3 (a) (i) In Table 3.2:

container **A**	container **B**	container **C**	container **D**
red ;	yellow ;	purple ;	red ;

[4]

(ii) <u>respiration</u> ; <u>photosynthesis</u> ; [2]

(iii) respiration / snail / animal produces (AW) carbon dioxide ;
carbon dioxide acidic / lowers pH ;
photosynthesis / plant uses (AW) carbon dioxide ;
hence less acidic / more alkaline ; [max 3]

(iv) yellow ;
either no photosynthesis / no carbon dioxide removed ;
or respiration continues / carbon dioxide produced ; R. respiration starts [2]

[Total: 11]