

MARK SCHEME for the May/June 2007 question paper

5090 BIOLOGY

5090/03

Paper 3 (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) tabulation:
1. neatly ruled
 2. all boxes closed and each figure separate
 3. three columns (or rows)
 4. units and titles in headers
 5. complete, one line increasing, other decreasing [5]
- (ii) graph:
1. axes correct (x horizontal)
 2. correctly labelled, with units
 3. accurate and clear plotting
 4. lines of best fit or ruled connections
 5. lines identified [5]
- (b) (i) body temperature ; [1]
- (ii) mix to ensure uniform temperature ; [1]
- (iii) view at right angles/leave in water/use magnifier ; [1]
- (c) (i) loses – cold – from – hot ;; [2]
[four correct = 2 marks, 3 correct = 1]
- (ii) horizontal line drawn ; [1]
- (d) cloth tied round beaker in which is thermometer ;
cloth wetted ;
temp taken at regular set intervals ;
data recorded/graph plotted ;
repeat with cloth dry
control a variable e.g. initial temp ;
uniform volumes of water ;
replication ; [max. 6]

[Total: 22]

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- 2 (a) (i) drawing marks: [D3]
1. at least 6 cm, clear and clean ;
 2. veins well shown and connected ;
 3. clear petiole ;
- three correct labels from: lamina/blade
petiole/leaf stalk
midrib/vein OVP ; [1]
- (ii) line correctly drawn and measured ;
units for leaf width ; [2]
- (iii) correct expression and calculation ;
correctly expressed magnification ; [2]
[up to 2 d.p. no excessive rounding, (0.2 max)]
- (b) (i) **B** dry/wilted/shrivelled aw ;
C similar/slightly less wilted etc ;
D like A/unshrivelled etc ; [3]
- (ii) ref stomata ;
mainly on lower leaf surface ;
transpiration/loss of water vapour ;
blocked in **D** ; [max. 2]
- (c) (i) at least 5 cm, clear, well proportioned ;
stained bundles picked out ;
two reasonable labels ; [3]
- (ii) in veins/midrib ; [1]
- (iii) in centre of recognisable root section ; [1]
- [Total: 18]**