

## MARK SCHEME for the May/June 2008 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.

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- 1 (a) (A) temperatures with .5 but (R) temperatures with other decimal places (e.g. .7)
- (i) temperature recorded for both 'dry' and 'wet' at 'zero' time ;
  - (ii) 5 more temperatures recorded for 'dry' ;  
5 more temperatures recorded for 'wet' ;
- no increase in temperature shown in 'dry' series ;  
no increase in temperature shown in 'wet' series ;
- 'wet' temperature decreases more over the range than 'dry' ; [5]
- (b) A axes correctly orientated, each with labels and units ;  
x-axis time in minutes (R) m, y-axis temperature in °C
- S even scale, with zero, to fill over half of the printed grid ;
- L ruled line joining point to point / line of best fit ;  
(R) line beyond 10 minutes (R) 'fuzzy' line
- K key / label , to identify lines ;
- P all 12 values from candidate's Table 1.1 plotted correctly ;  
+/- 1mm or half a square plots must be visible [5]
- (c) (i) 'wet' loses , more heat / heat more quickly ;  
(A) temperature / energy (A) converse  
use of figures / ref to gradients ;  
'figures' = 2 sets of figures / difference , for both 'wet' and 'dry' [2]
- (ii) 1 dry cover is insulator ;  
(A) converse
  - 2 traps air / air is a poor conductor of heat ;  
(A) traps heat (A) converse
  - 3 water evaporates from (wet) paper ;
  - 4 ref latent heat of evaporation / (evaporation) cools the water (in container) /  
takes heat from water / takes heat from container /  
takes energy from water / takes energy from container ;  
(A) 'cools container' [3 max]
- (iii) sweating / sweat ;  
(water / sweat) evaporates ;  
energy supplied by / removes heat from , skin ; [2 max]

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- (d) (i) *credit any two ways*  
*ignore start at same time / take temperature at same time /*  
*add water at same time / 'about'*

containers same size ;  
containers made of same material ;  
containers same shape ;

same / equal , volume / amount / level , of (hot) water in each container ;  
both containers , have lid / covered ;

same amount of paper ;  
same type of paper ;

wet paper not allowed to dry ;

same time duration ;

same starting temperature ;  
same surrounding temperature ;

[2 max]

- (ii) *credit any three improvements relating to accuracy and reliability only*  
*ignore extend time / different amounts of insulation /*  
*different types of insulation / different wetting methods*  
*any other way in which the investigation could be extended*

prevent draughts ;

repeat ;

more frequent readings ;

have 2 thermometers ;  
suspend thermometers at same position ;  
same starting temperature ;  
use digital thermometer(s) ;

use measuring cylinder to measure volume of water ;

use better fitting lid ;

AVP ; e.g. lid / paper , to be the same colour in both (ref. radiation)

[3 max]

[Total: 23]

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2 (a) *drawing*  
clear continuous outline with no shading ; (R) 3-D

good proportions and at least 5 cm in one direction ;

at least 1 seed attached to the placenta ;

*labels*

seeds / placenta ;

ovary wall / fruit wall / pericarp ;

point of attachment (scar) / remains of calyx / remains of sepals ;

remains of , style / stigma ;

[5 max]

(b) (i)

(type of fruit)	true / described	false / described	;
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(size)	small	large	;
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(seeds)	many	few / one	;
	small	large	;
	round / circular	oval / elliptical	;
	white / yellow	brown	;
	soft / jelly , seed coat / testa	hard , seed coat / testa	;
	not central / towards edge	central	;

(shape)		correct ref to difference in fruit shape	;
	thin flesh layer	thick flesh layer	;
	large (fleshy) middle	small central region	;

(texture)	soft , fruit / centre / flesh juicy / watery	hard(er) / tough , fruit / flesh dry	;
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(colour)		correct ref to difference in skin colour	;
	red flesh	yellow / green , flesh	;
	skin and flesh same colour	skin and flesh not same colour	;

(attachment)	remains of calyx large (if present)	remains of calyx , small / opposite end	;
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[4 max]

(ii) *credit any two similarities*  
*ignore dispersal / fruit / wall*

*suitable statements might refer to*

shape / colour / texture / presence of seeds / both have receptacles /

both have skin / 2 chambers / 2 sets of scars / AVP ; ;

[2 max]

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- (c) 1 equal sample , size / mass ;  
2 equal volume of water ;  
3 crush fruit / cut fruit into small pieces ;  
4 equal volume of Benedict's reagent ;  
5 heating in hot (not warm) water bath ; **(A)** 80°C or above  
6 equal time of heating ;  
7 comparison of colours ; (4 max)

*credit 2 refs to safety*

- S safety glasses ;  
S hot water ;  
S Benedict's ;  
S knife ;  
S flame / bunsen ;  
S hot glassware ; **(R)** if in context of heating directly (2 max) [6]

**[Total: 17]**