

**MARK SCHEME for the October/November 2006 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 students, 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.

The grade thresholds for various grades are published in the report on the examination for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses.

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

CIE is publishing the mark schemes for the October/November 2006 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

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- 1 (a) (mainly) black;  
slowly developed;  
(3-lobed) white/yellow/unstained centre;  
qualified skin; up to [3]
- (b) (i) crush/mix with water etc;  
add Benedict's;  
heat; water bath; [4]
- (ii) orange/red/yellow; R: green  
glucose/reducing sugar present;  
either suitably qualified; OVP - ppt; [3]
- (c) take fruits – at different (st)ages;  
3 or more; = regular sampling  
take similar sized samples of each;  
test for reducing sugar/with Benedicts;  
test for starch/with iodine soln;  
if starch reducing in amount;  
if r/s increasing/ref range of results;  
statement supported; (or converse). up to [6]
- (d) (i) seeds in cucumber; grow;  
no seeds in banana fruit; up to [2]
- (ii) by vegetative/asexual reproduction;  
by planting sucker/stem/cutting etc; R: bud [2]

Total : 20

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- 2 (a) (i) Drawing marks: D
1. At least 8 cm. clear, clean, realistic.
  2. Calyx & corolla, stamens attached.
  3. Stamens 2 at least, anthers shown.
  4. Stigma and style clear.
- Labels: corolla/petals & calyx/sepals;  
stamen/filament & anther;  
stigma & style; [3]
- (ii) Drawing marks: D.2
1. Extra clarity (with lens).
  2. More detail, e.g. attachment of filament/pollen grains.
- Labels: anther; pollen (grains); filament; up to [2]
- (iii) Indication of where drawing measured, both measurements recorded;  
*[units given once, mm or cm, latter to 1 d.p. e.g. 5.0 cm.]*  
dimension of drawing over dimension of specimen recorded;  
magnification correct and well stated; [3]  
*[2 d.p. max; rounded no more than 0.2]*
- (b) (i) One mark for each statement in each of 2 pairs in Table.2.1.
- |                                 |                        |  |
|---------------------------------|------------------------|--|
| W3                              | W4                     |  |
| red (etc)                       | green (etc) ;          |  |
| stigma (etc) covered/contained; | stigma emergent;       |  |
| stamen covered/contained;       | stamen (etc) emergent; |  |
| floral parts in 4s etc;         | fewer etc;             |  |
- other valid pair of observations; ; up to [4]
- (ii) W3 – by insects & feature;  
W4 – by wind & feature; [2]
- Total : 20