

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE O Level

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MARK SCHEME for the November 2005 question paper

5090 BIOLOGY

5090/03

Paper 3 maximum raw mark 40

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1 (a) Drawing marks:

[D.3]

- 1 Clear, clean realistic drawing, 5 cm or more, with basal disc.
- 2 Fleshy scale leaves accurately shown and attached.
- 3 Papery covering scales shown

Labels: Any 2 of: leaf/**scale**/bud/stem/disc;

[for 1]

(b) (i) Up to three from:

- both are roots;
- transverse sections;
- central conducting tissue;
- surrounded by storage tissue;
- AVP;

[up to 3]

(ii) Expect a comparison/contrast to be made

[1 mark per line]

- | | |
|--------------------------|-----------------------------|
| specimen in Fig.1.1 | cut surface of W2; |
| cellular structure clear | no cells visible; |
| vegetative organ AW | storage tissue/organ; |
| cells almost empty | full of starch/stored food; |

[up to 2]

(c) (i) black due to starch;
central pattern;
detail of distribution;
ref. time, or development of reaction;

[up to 3]

(ii) Test: Heat/boil with Benedict's; how heated;
obs: orange/reddish (ppt);
A: green if ref dilute concn.
concl: ref. (amount of) R.S/glucose present;

[4]

(iii) cutting open cells;
increased surface area;
releasing contents/sugar;
decanting gets rid of (masking) colour AW;

[up to 2]

[Total:18]

Page 2	Mark Scheme	Syllabus
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2 (a) (i) Drawing marks;

- 1 **Ruled** rectangle and square, in proportion.
- 2 Specimen well placed.

Labels: slide, cover glass, specimen, water; [2]

[3 correct = 2 marks 2 correct = 1 mark]

(ii) Two from:

air bubbles avoided;
central placement;
no overflow of water; [2]

(b) Filter paper soaks up water;
stain penetrates/drawn under cover;
stain emerges on f paper/replaces water;
specimen becomes stained;
ref. development with time; [up to 4]

(c) (i) Drawing marks: [D.3]

- 1 At least 6 cm clear and clean.
- 2 Large and small/simple leaves observed.
- 3 Leaf arrangement accurately shown.

Labels: stem; leaves; [2]

(ii) Line ruled and accurately measured with units once;
expression line length over specimen size;
correctly calculated and recorded; [3]

(iii) Four from:

specimen supported;
for examination with microscope;
clear for viewing/no fingers in the way AW;
specimen flat/thin;
ref. ease of focusing;
AVP; [such as ref. penetration of light/ref. visibility of staining] [4]

[Total: 22]