CAMBRIDGE
INTERNATIONAL EXAMINATIONS

NOVEMBER 2001

GCE ADVANCED SUBSIDIARY LEVEL

MARK SCHEME

MAXIMUM MARK : 25

SYLLABUS/COMPONENT : 8700/3

BIOLOGY
(PRACTICAL)

UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

1 **(a)** three similar colours – green – a variation of; **1**

(b) table headings: flask / beaker (contents of);
volume of sulphuric acid added in cm^3 ;
three burette readings;
tube **B** a value below 3 cm^3;
value **A** less than that of **C**;
two columns (two rows) only and need not be lined;
value of **C** greatest; **5 max**

(c) ref to molecular effect, enzyme colliding with substrate to give ammonium carbonate;
titration gives amount of ammonium carbonate produced;
boiling leads to little or no reaction;
enzyme is denatured;
protein in nature;
comparison of amount of product in **A** and **C**;
comment on relative denaturation in **A**; **5 max**

(d) **A** : less product formed;
B : same result; **2**

(e) pH, substrate, temperature (2 of 3); **2**

(f) control of the variable missing in **(e)**;
use of replicates;
stagger mixing times;
perform simultaneous titrations;
add inhibitor (boil immediately) to stop enzyme action; **3 max**

[Total: 18]

2 **(a)** drawing: accurate number of bundles (between 12 and 18);
different sizes shown;
shown alternately – minimum 4 bundles;
largest bundles have an elliptical shape;
positions of both on arc; **5**

(b) **(i)** accurate position of line on a radius, min. radial line across whole length of bundle; **1**
(if a tangential line is drawn – be critical in its acceptance)

(ii) xylem / phloem in a bundle provided correct line above; **1**

[Total: 7]