

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**NOVEMBER 2002**

**INTERNATIONAL GCSE**

**MARK SCHEME**

**MAXIMUM MARK : 40**

**SYLLABUS/COMPONENT : 0610/5**

**BIOLOGY**

**(PRACTICAL)**



UNIVERSITY of CAMBRIDGE  
Local Examinations Syndicate

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- 1 (a) (i) Drawing: (max 4 marks)  
 8cm or more space used;  
 clear sharp outline;  
 axillary / lateral , buds / shoots, shown;  
 scale leaves shown;  
 terminal bud / attachment to parent plant , shown;  
 lenticels shown;
- Labels: (max 1 mark)  
 (axillary / lateral) bud / shoot / eye;  
 scale / reduced , leaf;  
 terminal bud / attachment to parent plant; max 5
- (ii) organ of , perennation / storage;  
 asexual reproduction;  
 genetically identical offspring;  
 stores , starch / products of photosynthesis; max 2
- (iii) (axillary / terminal) bud;  
 (reduced) leaves;  
 lenticels; max 1
- (b) (ii) froth / gas / bubbles , rose in boiling tube;  
 vigorous reaction; 2
- (d) (i) y axis labelled, units in mm;  
 correct plotting (refer to (b)(i) and (c));  
 chopped greater than 4 cube level;  
 x axis labelled; 4
- (ii) chopped has greater surface area / 4 cubes have smaller surface area;  
 chopped cuts open more cells / AW;  
 releases more enzyme (molecules);  
 more contact with , substrate / Y;  
 Y / H<sub>2</sub>O<sub>2</sub> , is substrate;  
 gas / oxygen , is product;  
 more , gas / froth / bubbles , in chopped than in cubes; max 4
- (e) (i) boiled potato;  
 same , amount of chopped / number and size of cubes of , potato;  
 cool to same temperature as experiment before using potato;  
 same quantity of Y;  
 same concentration of Y; max 3
- (ii) no reaction (at this temperature);  
 enzyme has been denatured (by boiling); 2

[Total : 23]

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- 2 (a) (i) ( $\frac{1}{2}$  mark per label, round up)  
label lines and labels correct for incisor, canine, premolar, molar ;; 2
- (b)
- |       | incisors | canines | premolars | molars |
|-------|----------|---------|-----------|--------|
| upper | 4        | 2       | 4         | 6      |
| lower | 4        | 2       | 4         | 6      |
- 1
- (c)
- |       | incisors | canines | premolars | molars |
|-------|----------|---------|-----------|--------|
| upper | 4        | 2       | 4         | 4      |
| lower | 4        | 2       | 4         | 4      |
- or refer to Fig. 2.1 if different 1
- (d) candidate has no wisdom teeth / converse;  
wisdom teeth found , after puberty / between 16 – 25 years / AW;  
tooth / teeth , extracted / absent from birth;  
accounts for no differences;; max 2
- (e) (i) clear sharp outline;  
incisor has , chisel / square / rectangular , shape;  
canine has conical shape; 3
- (ii) incisor tip , flat / broad , and thin;  
incisor cuts;  
canine tip pointed;  
canine , seizes / tears / rips; 4
- (f) (i)  $100\text{mm}^2 / 1\text{cm}^2$  , approx. (allow 80 – 144 / 0.8 – 1.44); 1
- (ii) large surface area for , grinding / crushing;  
uneven cusps help , grinding / crushing;  
breaks open , cells / tissues / plant cells;  
releasing , cell / tissue , contents for digestion; max 3

[Total : 17]