Cambridge Assessment International Education

Cambridge IGCSE®

BIOLOGY **0610/06**

Paper 6 Alternative to Practical **For examination from 2020**

MARK SCHEME

Maximum Mark: 40

Specimen

This document consists of **4** printed pages.

© UCLES 2017

mark scheme abbreviations

;	separates marking points
/	alternative responses for the same marking point
not	do not allow
allow	accept the response
ecf	error carried forward
avp	any valid point
ora	or reverse argument
owtte	or words to that effect
underline	actual word given must be used by candidate (grammatical variants excepted)
( )	the word / phrase in brackets is not required but sets the context
max	indicates the maximum number of marks
Any [number] from:	accept the [number] of valid responses
note:	additional marking guidance

© UCLES 2017

1 **(a)** complete table with lines neatly drawn (appropriate number of cells);
(column / row) headings – number of pieces of sweet potato / cube number;
(column / row) labelled – number of bubbles in 1 minute;
(column / row) labelled – height of foam with correct units;
number of bubbles recorded 12, 23 and 38;
height values recorded 42 mm 63 mm 76 mm ±1 mm; [6]

(b) **(i)** Any two from:
same volume of H_2O_2;
same volume of potato cube;
same time; [max 2]

(ii) Any three from:
repeat **and** calculate mean;
exclude anomalies from mean calculation;
collect the gas and measure the volume;
avp; [max 3]

(c) activity is proportional to surface area / the greater the surface area the greater the activity / owtte; [1]

(d) **(i)** Any six from:
give a range of at least 4 temperatures;
describe how temperature would be changed / water-bath;
describe the use of a controlled equilibration time to reach temperature;
control stated as: an inert cube / boiled cube **or** same volume of water as hydrogen peroxide;
appropriate description of how volume of gas will be measured / bubbles counted;
appropriate statement regarding time;
<u>surface area</u> of potato controlled;
another controlled variable stated, e.g. pH / same potato;
repeat and calculate mean; [max 6]

(ii) Any one from:
safety goggles / gloves;
reference to temperature and safety; [max 1]

2 **(a)** **(i)** Any five from:

drawing with clear outline;

scaled to fill more than half the space;

detail without shading to include veins **and** petiole;

midrib / main vein;

branching veins / lateral veins;

petiole / leaf stalk;

lamina / leaf blade;

note: max 2 for labels alone [max 5]

(ii) 32–34 **and** cm^2 / 320–340 **and** mm^2; [1]

(iii) marking off squares (to avoid miscounting);

include the part squares / count squares more than ½ covered / owtte; [2]

(b) Any two from:

veins less prominent;

more shiny;

darker colour;

smoother / waxy;

note: comparison must be made [max 2]

(c) **(i)** loss in mass 1.9, 2.0, 2.2, 2.5, 2.7;

all values to one decimal place; [2]

(ii) axes labelled **and** units;

even scale **and** plots to fill more than ½ of printed grid;

plot 5 points correctly;; (plot 4 points correctly = 1 mark)

note: plotted points must be accurate to ±½ small square

straight line; [5]

(iii) 2.9 (g);

allow: ecf from incorrect plotting

indication shown on graph; [2]

(iv) percentage change in mass = (change in mass ÷ starting mass) × 100;

different original mass would affect result / to take into account the starting mass; [2]

© UCLES 2017