Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/53**

Paper 5 Practical Test **October/November 2018**

MARK SCHEME

Maximum Mark: 40

Published

This mark scheme is published as an aid to teachers and candidates, 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, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

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GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however**;** the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Mark scheme abbreviations

- **;** separates marking points
- **/** alternative responses for the same marking point
- **R** reject the response
- **A** accept the response
- **I** ignore the response
- ecf error carried forward
- AVP any valid point
- ora or reverse argument
- AW alternative wording
- underline actual word given must be used by candidate (grammatical variants excepted)
- ( ) the word / phrase in brackets is not required but sets the context

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Question	Answer	Marks	Guidance
1(a)(i)	table drawn with (ruled) lines, appropriate column / row headings ; units in headings ; height of bubbles in cooked and uncooked potato recorded ; trend, cooked lower than uncooked ;	**4**	**R** units if in the body of the table check supervisor's report
1(a)(ii)	idea of measuring from the same point ; using a the same ruler / scale / keep ruler rule straight ; measure at eye level / method described to avoid parallax error ; AVP; any variable that should have been kept the same in both tubes	**1**	
1(a)(iii)	uncooked potato produces more, foam / oxygen ; ora catalase / enzyme more active in uncooked / AW ; ora	**1**	
1(b)(i)	treatment of potato / AW ;	**1**	
1(b)(ii)	size / shape / mass / volume / weight / thickness, of potato ; same (type / variety / species of) potato ; same number of pieces ; surface area of potato chip ; volume of hydrogen peroxide / solution ; concentration of hydrogen peroxide / solution ; time in peroxide / solution ; temperature of reaction / hydrogen peroxide ; pH ; idea of cooked potato being cooled to same as uncooked / same starting temperature ; size/diameter of test-tube ; temperature of the hot water ; age of potato ;	**3**	

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Question	Answer	Marks	Guidance
1(c)	one was soaked in water and one was not soaked ; did not control temperature of hot water ; some of the oxygen escaped / foam reduces / AW ; height of foam was uneven ; no repeats ; cooked potato not cooled before adding to peroxide / temperatures of peroxide at start may be different ; cooked potato was not dried before adding to peroxide ; potato sticks may have come from different source ;	**3**	

Question	Answer	Marks	Guidance
1(d)	*independent variable* at least 3 different species of plant **;** *controlled variable(max two from:)* **;;** same size / mass plant same volume of hydrogen peroxide or stated volume same concentration of hydrogen peroxide same temperature / stated temp same pH same time / stated time tissue from same part, i.e. roots or leaves same size / diameter test-tube *dependent variable* measure height of bubbles / volume of oxygen produced / count bubbles **;** *detail of given method* adding peroxide to plant tissue **;** preparation of plant material / method used to achieve same surface area **;** *novel method* collecting volume of gas with gas syringe / upturned measuring cylinder **;** *control* test hydrogen peroxide with no vegetable / boiled plants **;** two or more repeats **;** relevant safety precaution **;**	**6**	

Question	Answer	Marks	Guidance
1(e)	*starch* add iodine (solution) **;** blue-black / black colour **;** *reducing sugars* add Benedict's **;** heat/ 80 °C **;** (brick) red / yellow / orange / brown / green (precipitate) **;**	**5**	

Question	Answer	Marks	Guidance
2(a)(i)	*start* 44 / 45 / 46 (mm) **and** *after 30 minutes* 4 / 5 / 6 (mm) **;**	**1**	
2(a)(ii)	1.3 **;;**	**2**	ecf value from **2(a)(i)** ÷ 30
2(b)(i)	*axes:* labelled with units **;** *scale:* suitable even scale and occupies at least half the grid on both axes **;** *plot:* all (average) points plotted accurately ± half a small square, bars do not touch and are the same width **;**	**3**	
2(b)(ii)	**C ;**	**1**	
2(b)(iii)	find the mass / weigh the animal **;** divide rate (of respiration / movement of bubble) by mass **;**	**2**	
2(c)(i)	*outline:* single clear line no shading, including antennae and telsons if present **;** *size:* equal to / larger than, original **;** *detail 1:* at least 8 distinct segments **;** *detail 2:* two projections at the front **and** two at the back **;**	**4**	

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Question	Answer	Marks	Guidance
2(c)(ii)	length of PQ correctly measured 48±1 (mm) **;** 5.33 (mm) **;;**	**3**	ecf for measured value in mp1

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