Cambridge O Level

Cambridge Assessment International Education
Cambridge Ordinary Level

BIOLOGY **5090/62**

Paper 6 Alternative to Practical **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.

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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.

Mark schemes will use these abbreviations:

;	separates marking points
/	alternatives
()	contents of brackets are not required but should be implied
R	reject
A	accept (for answers correctly cued by the question, or guidance for examiners)
Ig	ignore (for incorrect but irrelevant responses)
AW	alternative wording (where responses vary more than usual)
AVP	alternative valid point (where a greater than usual variety of responses is expected)
ORA	or reverse argument
underline	actual word underlined must be used by candidate
+	statements on both sides of the **+** are needed for that mark

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Question	Answer	Marks	Guidance
1(a)(i)	measuring / 100cm^3 cylinder ; syringe ;	**2**	
1(a)(ii)	dip in or add (paper to sample) / add sample (to paper) ; observe colour change ; compare with colour chart ;	**3**	
1(a)(iii)	decreases / falls **AW** ;	**1**	**A** becomes acidic / increases in acidity **A** from neutral to acidic **A** from 7 to 5
1(b)(i)	kill **or** destroy bacteria / microorganisms present ;	**1**	
1(b)(ii)	thermometer ;	**1**	**A** temperature sensor
1(b)(iii)	pH has reached correct value **or** 5 ; consistency **or** texture is thick / creamy ;	**2**	
1(b)(iv)	1 method of producing bacteria-free yoghurt ; 2 bacteria-free yoghurt added to milk ; 3 live yoghurt added to milk ; 4 reference to controlling yoghurt : milk volume ; 5 kept at 40–50 °C for 6–10 hours ; 6 pH or consistency / thickness checked / measured ; 7 milk with bacteria-free yoghurt **not** turned to yoghurt ;	**5**	

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>2(a)(i)</td><td>prevent seeing / won't know how many points were being used AW ;

so that touch is the only sense being tested ;</td><td>1</td><td></td></tr>
<tr><td>2(a)(ii)</td><td><table><tr><th>distance between two points / mm</th><th>end of thumb</th><th>palm</th></tr><tr><td>20</td><td>√</td><td>√</td></tr><tr><td>15</td><td>√</td><td>X</td></tr><tr><td>10</td><td>√</td><td>X</td></tr><tr><td>5</td><td>√</td><td>X</td></tr><tr><td>2</td><td>X</td><td>X</td></tr></table></td><td>2</td><td>one mark for each correct column</td></tr>
<tr><td>2(a)(iii)</td><td>(index) <u>finger</u> ;</td><td>1</td><td></td></tr>
<tr><td>2(b)(i)</td><td>1 both axes fully labelled with units on distance axis ;

2 linear scale with 0 at origin for mean minimum distance + at least half of grid used ;

3 all data correctly plotted ± 1 mm ;

4 all drawn bars ruled and of equal width ;</td><td>4</td><td></td></tr>
<tr><td>2(b)(ii)</td><td>to make results more <u>reliable</u> / improve <u>reliability</u> ;</td><td>1</td><td></td></tr>
<tr><td>2(b)(iii)</td><td>ensure same area of each section of arm / shoulder tested ;

same pressure / force exerted on skin / time points in contact with skin ;</td><td>1</td><td></td></tr>
</table>

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Question	Answer	Marks	Guidance
2(b)(iv)	different areas of skin have different numbers of receptors ; (touch) receptors closer together in more sensitive areas / hands **ORA** ; fingers / hand involved in manipulating / handling objects **ORA** ;	**2**	**A** more (touch) receptors in finger tip

Question	Answer	Marks	Guidance
3(a)(i)	1 drawing of pod at least 80 mm in length ; 2 outlines of three peas drawn with sharp pencil **+** continuous lines with peas delimited (separated) from stalks **+** no shading anywhere ; 3 <u>all</u> peas drawn roughly circular **+** not touching lower edge of pod ; 4 all 3 stalks joining peas to pod drawn with double lines ; 5 seed and pericarp / fruit wall correctly labelled ;	**5**	
3(a)(ii)	measurement of photo: 59 – 61 ; candidate's measurement from photograph ÷ 1.2 ; correct answer with units ;	**3**	correct answer with units but no working scores both marking points 2 and 3

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Question	Answer	Marks	Guidance
3(b)(i)	24 round **+** 6 wrinkled **;**	**1**	
3(b)(ii)	6 / 30 (×100) **;** 20 **;**	**2**	correct answer with no working scores 2 marks
3(b)(iii)	actual ratio = 4:1 **;** sample size too small **AW ;** random fertilisation **/** based on chance **or** probability **;**	**2**	

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