Cambridge O Level

Cambridge Assessment International Education
Cambridge Ordinary Level

BIOLOGY **5090/61**

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)	drawing at least 70 mm diameter ; outline drawn with sharp pencil **+** continuous lines **+** no shading **+** defined central shape ; pericarp indicated **+** good proportion ;	**3**	
1(a)(ii)	lines drawn on photograph and drawing ; two correct measurements ± 1 mm ; correct working for magnification ; allowance for magnification × 1.5 ; correct calculation ;	**5**	**A** 61–63 mm for photograph **A** correct magnification without working for marking points 3, 4 and 5
1(b)(i)	starch present ; in black / central parts / starch not present in other areas / non-black parts **AW** ;	**2**	
1(b)(ii)	so any colour change seen clearly **AW** ;	**1**	
1(b)(iii)	prevent iodine getting on skin / hands ; iodine might irritate skin ;	**1**	
1(c)(i)	dice / cut up / mash banana flesh ; add Benedict's solution ; heat ;	**3**	
1(c)(ii)	changes from <u>blue</u> to green / yellow / orange / red colour ;	**1**	
1(c)(iii)	avoid burning / use tongs ; point test-tube away from you ; wear goggles ;	**1**	

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Question	Answer	Marks	Guidance
2(a)(i)	5 marks added to tally count ; tally count correctly completed (1 × 7 spines, 1 × 6 spines, 2 × 4 spines, 1 × 1 spine) ;	**2**	
2(a)(ii)	number of leaves 15 ; total number of spines 81 ; average number of spines per leaf 5.4 ;	**3**	
2(a)(iii)	both axes fully labelled with units ; linear scale with value at origin of mean number of spines axis **+** occupying more than half of grid ; three plots correct ± 1 mm ; bars of equal width with ruled sides ;	**4**	
2(a)(iv)	number of spines decreases as height above ground increases ;	**1**	
2(a)(v)	more leaves at same height / greater sample size ; leaves at intermediate / different heights ; leaves from a different holly tree(s) ;	**2**	
2(b)	**flower A**: large / long anthers ; **flower A**: small (carpel) / stigma / style / ovary ; **flower B**: large (carpel) / stigma / style / ovary ;	**3**	marking point 3 must match marking point 2 to award mark

Question	Answer	Marks	Guidance
3(a)	touch wrist / neck ; (count) beats in given time period ;	**2**	
3(b)	resting / starting pulse (rate) measured ; coffee / caffeine drunk ; suitable time interval ; measure heart beat rate / pulse rate again ; use different subjects / idea of control e.g. same activity level / no caffeine **+** caffeine ;	**4**	
3(c)	same people / subjects ; same volumes (of drink and coffee) ; same time intervals between drinking **+** measuring ; same activity levels ;	**2**	

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