Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

BIOLOGY **0610/63**

Paper 6 Alternative to Practical **May/June 2019**

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 May/June 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U 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.

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Question	Answer	Marks	Guidance
1(a)	*any two from MP1–3* use ethanol emulsion test **;** mix the sample (with ethanol) **;** add water **;** *positive test result* look for cloudy suspension / formation of emulsion **;**	**3**	
1(b)(i)	heating (to 80 °C) **;**	**1**	
1(b)(ii)	colour change to yellow / green / orange / brick-red / red **;**	**1**	
1(c)(i)	table, two columns with suitable headings **;** e.g. test-tube and observation(s) all colours recorded: **P** purple **Q** purple **R** blue **;**	**2**	
1(c)(ii)	**P** and **Q** contain protein and **R** contains no protein **;** albumen contains protein **;** acid needed for the enzyme to work **;** AVP **;**	**1**	AW throughout
1(c)(iii)	pH / acid / enzyme **;**	**1**	
1(c)(iv)	as a control / AW / to compare with enzyme test-tubes **;** to see if albumin was affected by water alone / to see if it was the enzyme or acid causing the effect	**1**	
1(c)(v)	to keep, volume / albumin concentration, the same **;**	**1**	
1(c)(vi)	*error* syringes not clean / cross-contamination **;** *effect* dilution of solutions in **P, Q** and **R** / enzymes in control **P** / acid in wrong place **P** or **Q** / AW **;**	**2**	
1(c)(vii)	use of acid / enzymes **;**	**1**	

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Question	Answer	Marks	Guidance
2(a)	Line – clear inner line and outer line, with no shading ; Size – occupies at least half the space available ; Detail D1 – detail showing two or more layers ; D2 – crinkled inner line and smooth outer line ;	**4**	
2(b)(i)	length of **AB** recorded as 37 mm ; 2.8 mm / 2.9 mm ;;	**3**	**A** ±1 mm
2(b)(ii)	*similarity* both have layers / same number of layers / presence of lumen (described) / contain material in lumen / dotted appearance / AW ; *difference* size / size of lumen / wall thickness / thickness of layers / material in lumen / shape / striations of middle layer /AW ;	**2**	
2(c)(i)	105 ;;	**2**	
2(c)(ii)	**A**(xes) – labelled time / minutes **and** pulse rate / beats per minute or bpm ; **S**(cale) – suitable scale and scale that occupies at least half the grid ; **P**(lot) – correct plots ; **L**(ine) – suitable line joining points ;	**4**	
2(c)(iii)	indication on graph at 15 minutes ; correct value from graph ;	**2**	
2(c)(iv)	constant before exercise ; rises during exercise **and** then falls ; does not return to resting value by 18 minutes ; data quote with units ;	**3**	

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Question	Answer	Marks	Guidance
2(d)	description of method of exercise **;** different speeds indicated **;** measure pulse during / immediately after **;** method for measuring pulse rate **;** named constant variables **;;;** • distance run / time taken • age / gender / health of participants / same person • same (named) environment conditions of exercise e.g. temperature / wind /slope • rest breaks between measurements / return to resting bpm at least three participants sampled **or** carry out three times with the same person **;** relevant safety precaution **;**	**6**	