## **CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**Cambridge International General Certificate of Secondary Education** 

## MARK SCHEME for the October/November 2015 series

## 0610 BIOLOGY

0610/63

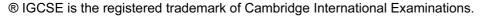
Paper 6 (Alternative to Practical), maximum raw mark 40

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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2015 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level components and some Cambridge O Level components.





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## Abbreviations used in the Mark Scheme

• ; separates marking points

I separates alternatives within a marking point

• R reject

ignore mark as if this material was not present

accept (a less than ideal answer which should be marked correct)
AW alternative wording (accept other ways of expressing the same idea)
underline words underlined (or grammatical variants of them) must be present
indicates the maximum number of marks that can be awarded
mark independently the second mark may be given even if the first mark is wrong

ecf
 credit a correct statement that follows a previous wrong response
 ()
 the word / phrase in brackets is not required, but sets the context

ora or reverse argument
 AVP any valid point

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Question	Mark scheme	Mark	Guidance
1 (a) (i)	add water/cut egg white / AW ;		
	(addition of) biuret (solution) ;	[2]	R if heated/acid added
(ii)	(ii) blue to purple (means protein is present);		ignore goes purple alone – needs to be a change of
	stays blue / no change means protein is absent ; [2]		Colour
(iii)	iii) wear a lab coat/use a test-tube rack/ wear gloves;		ignore goggles
(b) (i)	(b) (i) test-tube <b>B</b> : 432 (seconds) and test-tube <b>C</b> : 266 (seconds);		
(ii)	(ii) table with at least two columns and four rows;		
	column headings test-tube or volume of enzyme / cm <sup>3</sup> and time taken/s;		
	observations recorded for three tests ;		ecf 1(b)(i)

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(c)	any two from: more enzyme/higher concentration of enzyme means faster change/AW ora;		answer must refer to enzyme
	calculated figures from table ;		e.g. C/10 cm³ enzyme takes 166 second less than B/5 cm³ enzyme ignore figures just quoted from the table
	test-tube <b>A</b> does not / may not change / took the longest time, because no enzyme is present/AW;	max [2]	
(d)	(idea of) control / for comparison / AW;	[1]	
(e)	two from: temperature affects enzyme activity/specific reference to an effect e.g. high temperatures denature/warmer temperatures speed up the activity/more activity/cooler temperatures slow activity down or there is less activity; temperature is a controlled variable (and must not vary)/AW; if temperature is different in each test-tube, results are less valid/less reliable/AW ora;	max [2]	ignore references to optimum temperature R enzymes killed
(f)	surface area would alter the rate of enzyme activity/AW;	[1]	
(g) (i)	(pH)10;	[1]	
(ii)	pepsin;	[1]	A gastric protease / protease in stomach
		[Total: 16]	

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2	(a)	drawing of outer edge, midrib and main veins uses single clear unbroken lines with no shading anywhere;		
		drawing is larger than the photograph;		
	<ul> <li>two correct details;</li> <li>e.g.</li> <li>pointed tip with correct shape of tip and leaf (width approximately half the length)</li> <li>veins off the midrib alternate (not paired), extending to outer edge and curving</li> <li>petiole drawn with narrow double line and indent at base</li> </ul>		[3]	
	(b) (i)	0.7 ÷ 4.2 × 100		
		16.7 ;;	[2]	two marks for correct answer with no working
	(ii)	leaves have different starting masses;		ignore to make the results more fair/more
		means that results (for different leaves) can be compared/AW <b>ora</b> ;	[2]	reliable/more valid/accurate/precise

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(iii)	axes labelled and with an even scale on y-axis, x-axis leaf and letter and y-axis percentage decrease in mass;		
	size bars to fill at least half of the grid in both directions ;		
	plots all accurate ±½ small square ;		A ecf from 2(b)(i)
	bars <b>ruled</b> , of same width, not touching, and spaces between bars, same width as each other;	[4]	
(iv)	lower surface – because less water loss when it is covered ora / Q loses more than R or when lower surface is exposed / R loses less than Q or when the lower surface is covered /AW;	[1]	R lower surface unqualified
(c)	independent variable: temperature; control variable: two from:		
	leaf type/species/similar size/similar surface area humidity AW/wind speed AW/light (intensity)/time/carbon dioxide concentration ;;		R temperature and mass
	dependent variable: mass/change or decrease in mass;	[4]	A distance moved by bubble/coloured water (in the context of a photosynthometer) ignore rate of transpiration/water loss R dry mass
		[Total: 16]	

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3 (a)	any two features wit	h matching compari	sons:		
	feature	human red blood cell	frog red blood cell		
	shape	round/disc/AW	oval/AW		
	nucleus	absent / not visible	present / visible		
	size	small	large		
	number / concentration /	more	fewer		
	density, of cells	higher	lower		
	one mark for two fea	atures (vertical colun	nn) ;		
	one mark for each c	orrect row ;;		[3]	
(b)	measurement mark:	80 (mm);			<b>A</b> ± 1 (mm)
	formula mark: 80 ÷ 2 calculation mark: (x)			[3]	ecf if original measurement incorrect two marks for correct answer with no working
(c)	mitosis/make protei keep cell alive longe		ity/	[1]	R meiosis/binary fission
				[Total: 7]	