

CAMBRIDGE INTERNATIONAL EXAMINATIONS**Cambridge International General Certificate of Secondary Education****MARK SCHEME for the October/November 2015 series****0610 BIOLOGY****0610/51**

Paper 5 (Practical Test), maximum raw mark 40

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

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Abbreviations used in the Mark Scheme

- ; separates marking points
- / separates alternatives within a marking point
- R reject
- ignore mark as if this material was not present
- A 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
- max 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	Answer	Mark	Additional Guidance
1 (a) (i)	starch: blue-black ; water: (stays) orange / brown / red ;	[2]	
(ii)	for comparison / negative test colour / control ;	[1]	
(b) (i)	headings and units time / min, pH5, pH7 ; appropriate number of columns ; appropriate number of rows ;	[3]	
(ii)	results recorded in each box ; blue-black to orange / brown / red in both pH5 and pH7 ; pH5 goes orange / brown / red before pH7 ;	[3]	
(c)	pH5 is faster than pH7 ; use of data ;	[2]	
(d)	<i>any three from:</i> control temperature – keep the same ; agitation / shaking / AW ; use fresh enzyme ; repeat ; separate timing ; shorter time interval between samples ; use of colour standard for comparison of end point ; equal size drops on tile / use pipette to measure volume of drops ;	max [3]	ignore longer testing periods ignore testing other pH values as this is a separate investigation
		[Total: 14]	

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2 (a) (i)	outline – clear, no shading, 5 grains drawn ; size at least half the space is used ; details of shape of each grain ;	[3]	
(ii)	measurement of one separated grain ; units ;	[2]	
(iii)	scaled drawing – six times larger than stated measurement in (ii) ; clear outline and attachment shown ; label ;	[3]	
(b) (i)	light 19–21 and dark 20–22 ;	[1]	
(ii)	1:1 ;	[1]	
(iii)	smooth / wrinkled / have a dent / speckled / size / shape / AW ;	[1]	

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(c)	<i>any 5 from:</i> crushing grain in preparation ONCE only for either test ; <i>protein test:</i> reagent: biuret (solution) ; colour change observed: – blue to purple ; <i>fat test:</i> add alcohol / ethanol ; water is added to alcohol ; emulsion formed / clear to cloudy / milky / white ;	max [5]	R heating / acid added
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(d) (i)	axes labelled and scaled evenly ; size to fill at least half or more of printed grid; plotted points accurate to $\frac{1}{2}$ of a small square ;; bars not touching and equidistant ; key ;	[6]	bar chart
(ii)	2 ;	[1]	
(ii)	<u>oats</u> ; <i>any 2 from:</i> fat content <u>highest</u> ; protein content high ; fat has a higher energy content than protein ;	max [3]	
		[Total: 26]	