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**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

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.

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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 ;<br>water: (stays) orange / brown / red ; | [2] | |
| (ii) | for comparison / negative test colour / control ; | [1] | |
| (b) (i) | headings and units<br>time / min, pH5, pH7 ;<br>appropriate number of columns ;<br>appropriate number of rows ; | [3] | |
| (ii) | results recorded in each box ;<br>blue-black to orange / brown /red<br>in both pH5 and pH7 ;<br>pH5 goes orange / brown / red before pH7 ; | [3] | |
| (c) | pH5 is faster than pH7 ;<br>use of data ; | [2] | |
| (d) | *any three from:*<br>control temperature – keep the same ;<br>agitation / shaking / AW ;<br>use fresh enzyme ;<br>repeat ;<br>separate timing ;<br>shorter time interval between samples ;<br>use of colour standard for comparison of end point ;<br>equal size drops on tile / use pipette to measure volume of drops ; | max [3] | **ignore** longer testing periods<br>**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 ;<br>size at least half the space is used ;<br>details of shape of each grain ; | [3] | |
| **(ii)** | measurement of one separated grain ;<br>units ; | [2] | |
| **(iii)** | scaled drawing – six times larger than stated measurement in (ii) ;<br>clear outline and attachment shown ;<br>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)** | *any 5 from:*<br>crushing grain in preparation ONCE only for either test ;<br><br>*protein test:*<br>reagent: biuret (solution) ;<br>colour change observed: – blue to purple ;<br><br>*fat test:*<br>add alcohol / ethanol ;<br>water is added to alcohol ;<br>emulsion formed / clear to cloudy / milky / white ; | max [5] | **R** heating / acid added |

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| | | | |
|---|---|---|---|
| **(d) (i)** | axes labelled and scaled evenly ;<br>size to fill at least half or more of printed grid;<br>plotted points accurate to ½ of a small square ;;<br>bars not touching and equidistant ;<br>key ; | [6] | bar chart |
| **(ii)** | 2 ; | [1] | |
| **(ii)** | oats ;<br><br>*any 2 from:*<br><br>fat content highest ;<br>protein content high ;<br>fat has a higher energy content than protein ; | max [3] | |
| | | **[Total: 26]** | |

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