

UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2010 question paper
for the guidance of teachers**

0610 BIOLOGY

0610/51

Paper 5 (Practical Test), maximum raw mark 40

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



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|---------------|---------------------------------------|-----------------|--------------|
| Page 2 | Mark Scheme: Teachers' version | Syllabus | Paper |
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| Question | Mark scheme | | Additional guidance A. = accept, R. = reject, I. = ignore. |
|-----------------|--|---------|---|
| 1 (a) | Table: 3 columns; Column headings appropriate + units; Neat ruled lines; Results recorded for three tubes; | [5] | if 2 columns, A. the headings I. absence of the word 'enzyme' Outer 'box' / 'frame' not needed for the neatness mark. |
| (b) (i) | greater volume with enzyme; greater volume with 3% enzyme than 1%; clearer juice; | [3] | A. relevant ref. to colour because question asks for 'appearance' A. converse = 'cloudy' – only applies to the 0% enzyme. A. ecf from results in table |
| (ii) | repeat readings; control temperature of incubation; control pH with use of buffers; more concentrations; use similar apples from same tree / same age; | [max 3] | A. same variety or ref. to named varieties. e.g. separate series of tests with other fruits / longer time / larger volume / use stop watch. |

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| Question | Mark scheme | | Additional guidance A. = accept, R. = reject, I. = ignore. |
|--------------------|--|---------|--|
| (c) (i) | 1. range of pHs; 2. control of pH; 3. same type / volume + pulp; 4. same volume / mass of enzyme; 5. concentration of enzyme; 6. same temperature; 7. same timings; 8. filtration; 9. ref. to using volume of juice to assess enzyme activity; 10. allow for repeat readings; 11. graph the results 12. calculate mean; 13. safety feature | [max 6] | more than 3. R. just 'different pHs' mark is for <i>how</i> it is done. Ideally with buffers but A. adding one, two or three drops of acid / references to different acidic and/or alkaline and/or neutral solutions A. named acids and / or alkalis. |
| (ii) | orientation of axes axes labels; rise and fall; | [3] | enzyme activity / volume of juice in cm ³ or ml [y] and pH [x] |
| [Total: 20] | | | |

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|---------------|---------------------------------------|-----------------|--------------|
| Page 4 | Mark Scheme: Teachers' version | Syllabus | Paper |
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| Question | Mark scheme | | Additional guidance A. = accept, R. = reject, I. = ignore. |
|--------------------|---|---------|---|
| 2 (a) | <u>Drawing</u> clear outline, no shading; reasonable size; recognisable detail; <u>Labels</u> jointed leg / joint; hairs / hooks / exoskeleton / claw / cuticle / pollen basket; | [max 5] | Closed ends to leg. R. sketchy (fuzzy) line. R. ink leg at least 6 cm long showing leg hairs / 3 segments / claw R. fur |
| (b) (i) | measurement of photograph Fig. 2.1 = 20 mm | [1] | +/- 1 mm 19, 20, 21 |
| (ii) | calculation – <u>photograph size in mm / cm</u> magnification; actual size; | [2] | ecf. 0.038 – 0.04 – 0.042 or 4×10^{-2} correct answer with no working – 2 marks. correct working with wrong answer – 1 mark. correct answer with wrong working – 1 mark. |
| (c) (i) | iodine solution; brown to blue/black; Benedict's solution / test / correct chemicals / Clinistix; heat; expected colour change; safety – in water bath / tongs, etc; | [4] | I. reference to 'warming' safety point for either test, goggles for iodine goggles / overall / hair tied back I. gloves independent marking, one mark for each correct box in table. |
| (ii) | starch – no change / stays brown; – none present; reducing sugar – became red; – <u>reducing sugar</u> present; | [4] | A. green / yellow / orange / red I. glucose |
| (d) | <u>honey bee</u> – insecta / insect / insectoid; reason – wings / 3 pairs or 6 legs / 3 body parts or head + thorax + abdomen / 1 pair of antennae / 1 pair of compound eyes; <u>parasite</u> – arachnida; reason – 4 pairs of legs or 8 legs; | [4] | Completely independent, credit observation, [not negative features] |
| [Total: 20] | | | |