CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge International General Certificate of Secondary Education

MARK SCHEME for the October/November 2014 series

0653 COMBINED SCIENCE

0653/63

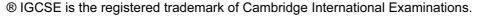
Paper 6 (Alternative to Practical), maximum raw mark 60

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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1 (a) Test 1: red/orange; Test 2: purple; [2] (b) A - protein; **B** – starch; **C** – (reducing) sugar; [3] (c) same volume of each solution / D and E; keep other factors/named factor constant; heat/warm (until no further change)/excess Benedict's; yellow/green = less concentrated; orange/red = more concentrated; [max 3] (d) dissolve in/add ethanol AND add water; [2] milky/cloudy/white (emulsion); [Total: 10] 2 (a) (i) delivery tube leading into limewater in suitable vessel; delivery tube above liquid level in reaction vessel and below liquid level in limewater; [2] [1] (ii) limewater becomes milky/white precipitate/cloudy; (iii) carbon dioxide; [1] (iv) carbonate; [1] (b) (i) (solution **D** contains) OH⁻/hydroxide ions/is alkaline/is base; [1] (ii) copper(II) hydroxide; [1] (c) (i) magnesium carbonate/solid A (when heated) gives off carbon dioxide; and becomes magnesium oxide/owtte; [2] (ii) (magnesium oxide reacts with water and becomes) magnesium hydroxide; [1] [Total: 10]

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3 (a) measuring cylinder; [1]

(b)
$$T_2 = 81^{\circ}C$$
;
 $T_3 = 49^{\circ}C$; [2]

(c) fall, rise, lose, gain (in correct order); [1]

(d) (i)
$$27^{\circ}C/T_3 - 22$$
 (ecf); [1]

(ii)
$$32^{\circ}C/T_2 - T_3$$
 (ecf); [1]

(e) (i)
$$13440 \text{ J/(d)(ii)} \times 420 \text{ (ecf)}$$
; [1]

(ii)
$$11340 \text{ J/(d)(i)} \times 420 \text{ (ecf)}$$
; [1]

(iii)
$$2100 \text{ J/(e)(i)} - \text{(e)(ii)} \text{ (ecf)}$$
; [1]

(iv)
$$0.9(15) / \frac{\text{(e)(iii)}}{\text{(d)(i)} \times 85}$$
 (ecf); [1]

[Total: 10]

4 (a) arrow for d to centre of beaker; [1]

(b)

Distance	Number of bubbles
70	17
50	28
40	43
30	65
20	99

..

(all five correct is 2 marks, three or four correct is 1 mark) [2]

(c) suitable linear scale; 4 correct plots \pm 0.5 square;

smooth curve ; [3]

[1]

[1]

P	age 4	1	Mark Scheme	Syllabus	Paper
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	(d)		to show ; rect reading from 60 cm on graph \pm 0.5 square ;		[2]
	(e)	(i)	photosynthesis;		[1]
		(ii)	as <u>light intensity</u> increases rate (of photosynthesis) increases;		[1]
					[Total: 10]
5	(a)	77 ; 52 ;			[2]
	(b)	with 4 co	able linear scales chosen with both labelled with the variable and at the correct unit; prrect points plotted $\pm\%$ square ;; both curves drawn and at least one labelled ;	least one	[4]
	(c)	(i)	copper sulfate (no mark) because the temperature rise is greater/more energy released/fastemperature increase;	ster	[1]
		(ii)	there will be a greater temperature rise AND because magnesium reactive than zinc/is higher in the electrochemical series;	is more	[1]
	(d)		d: copper ; ution: zinc sulfate ;		[2] [Total: 10]
6	(a)	(i)	24 ;		[1]
		(ii)	65 ; 273 ;		[2]
		(iii)	density of A l is: 2.7(083333) (ecf); density of lead is: 11.4/11.375/11.38 (ecf);		[2]
		(iv)	lead atoms are heavier than Al atoms;		[1]
	(b)	(i)	length = 8.0 cm width = 3.0 cm		[1]

height = 2.0 cm;

(ii) $48\,\mathrm{cm}^3$ correctly recorded in the table twice;

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(c) (i) the wood has absorbed water; [1]

(ii) there are more air spaces in the balsa wood/balsa wood grows faster so is less dense; [1]

[Total: 10]