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COMBINED SCIENCE

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Paper 6 Alternative to Practical

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MARK SCHEME

Maximum Mark: 60

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Question	Answer	Marks
1(a)(i)	Blue-black indicates starch present (initially); Brown indicates starch breaks down in A ; Starch still remains in B / starch not broken down	3
1(a)(ii)	Would get brown / starch breaks down faster / AW	1
1(b)	Benedicts solution; Heat; Yellow / green / orange / red; Wore goggles because of hot water / chemicals / water bath not Bunsen / gloves / lab coat as iodine stains; AVP	4
1(c)(i)	Enzyme / amylase is a protein so could give a positive result; AW	1
1(c)(ii)	(blue--black) colour masks test; AW	1

Question	Answer	Marks
2(a)	10 cm ³ and 10 cm ³ ;	1
2(b)(i)	28: 99 ;	2
2(b)(ii)	decreasing concentration increases time ;	1
2(b)(iii)	0.03571 and 0.01010 to any rounding ; 0.036 and 0.010 ;	2
2(b)(iv)	both ratios worked out ; same effect as within 10% / same effect as both nearly the same ;	2
2(c)(i)	too corrosive / would be too short a time / would be too fast a reaction ;	1

Question	Answer	Marks
2(c)(ii)	starting stopclock after gas begins to be released / irregular size of marble chips / use of measuring cylinder for dilution exercise ;	1

Question	Answer	Marks
3(a)(i)	1.4(0) (V) ; 0.23 (A) ; <i>I</i> to 2 s.f. and <i>V</i> to 3 s.f. ;	3
3(a)(ii)	<i>V</i> / volt and <i>A</i> / amp ;	1
3(a)(iii)	cell runs down / wire gets hot ;	1
3(b)(i)	axes labelled ; 4 plots correct to half a small square ;	2
3(b)(ii)	good best fit line judgement ;	1
3(c)	extrapolation and value $\pm$ half small square ;	1
3(d)	current values too high / cell runs down ;	1

Question	Answer	Marks
4(a)(i)	Jelly is alkaline;	1
4(a)(ii)	Sodium hydroxide / sodium hydrogen carbonate	1
4(b)	container and acid level above jelly cube drawn; Labels for container and acid (and jelly cube)	2
4(c)	5 and 10 mm;	1

Question	Answer	Marks
4(d)	59; 155;	2
4(e)(i)	larger cube (has) greater distance (so) time is longer; ORA	1
4(e)(ii)	large cube is more than twice small cube / large cube is 2.5 times	1
4(e)(iii)	Difficulty in deciding end point/cutting cubes exactly / AVP	1

Question	Answer	Marks
5(a)(i)	17 ;	1
5(a)(ii)	test-tube 1 ...blue ppt. ; test-tube 6...dark blue solution ;	2
5(b)(i)	to keep total volume the same / so can measure height of ppt. when settles ;	1
5(b)(ii)	curve at bottom of test-tube / different compaction on settling ;	1
5(c)	the more ammonia solution the higher the ppt. ; height drops / less ppt. ; ppt. dissolves / ppt. disappears / ammonia in excess ;	3
5(d)(i)	ppt. does not dissolve in sodium hydroxide solution ;	1
5(d)(ii)	26 ;	1

Question	Answer	Marks
6(a)(i)	6.3 ± 0.1 and 2.5 ± 0.1 and 2.5 ± 0.1 ; to nearest millimetre ;	2
6(a)(ii)	$39.375 \text{ (cm}^3\text{)} ;$ e.c.f (i)	1
6(a)(iii)	dimensions of block not consistent ;	1
6(a)(iv)	$0.8 \text{ (N)} ;$	1
6(v)	$2.0(3) \text{ (g / cm}^3\text{)} ;$	1
6(b)(i)	$83 \text{ (cm}^3\text{)} ;$	1
6(b)(ii)	$1.8(6) \text{ (g / cm}^3\text{)} ;$	1
6(c)(i)	Method 2, as dimensions of block irregular ;	1
6(c)(ii)	modelling clay will get wet/mass of clay increases due to water, or similar ;	1