

Cambridge IGCSE™

COMBINED SCIENCE**0653/63**

Paper 6 Alternative to Practical

October/November 2022**MARK SCHEME**Maximum Mark: 40

Published

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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2022 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

Question	Answer	Marks
1(a)(i)	60 (mm) ;	1
1(a)(ii)	0.75 ;	1
1(a)(iii)	Size: fills at least half of the box ; Outline: five-pointed star shape with a clear continuous outline ; Detail: three seeds / teardrop shape around seeds / thin outer skin ;	3
1(a)(iv)	seed labelled correctly ;	1
1(b)(i)	<i>iodine solution</i> brown ; <i>Benedict's solution</i> blue ; <i>biuret solution</i> blue ;	3
1(b)(ii)	<i>iodine solution</i> starch present ; <i>biuret solution</i> no protein present ; <i>universal indicator</i> acidic ;	3
1(b)(iii)	the student did not heat ;	1

Question	Answer	Marks
2(a)	5.0 ; 5.8 ;	2
2(b)(i)	x-axis labelled mass of sodium hydrogencarbonate (heated) in g AND y-axis labelled mass of solid (remaining in the test-tube) in g ; suitable linear scales such that points occupy at least half of the grid ; plots correct ;	3
2(b)(ii)	result at 2.0 g circled ;	1
2(b)(iii)	correct straight line of best-fit ignoring the anomalous point ;	1
2(b)(iv)	as the mass of sodium hydrogencarbonate (heated) increases, the mass of solid remaining (in the test-tube) increases / AW ;	1
2(b)(v)	4.0 g (from candidate's graph) ;	1
2(c)(i)	there is a decrease in (solid) mass / AW ;	1
2(c)(ii)	test limewater / (aqueous) calcium hydroxide AND observation goes milky ;	1
2(d)	flame is hotter / to ensure complete reaction / to avoid getting soot on the test-tube ;	1
2(e)	heat again and see if, there is any <u>mass</u> loss / mass stays the same ;	1

Question	Answer	Marks
3(a)	measuring cylinder ;	1
3(b)	27.5 (°C) ;	1
3(c)	ensures all water is at same temperature / AW ;	1
3(d)	17.0 (°C) ;	1
3(e)	7140 (J) to any sig. figs. ; answer given to two sig. figs. / 7100 ;	2
3(f)	from the, glass beaker / surroundings ;	1

Question	Answer	Marks
4	<i>one marking point from each section and then any two others</i> 1 apparatus voltmeter AND ammeter ; power supply for circuit ; 2 method and measurements ammeter in series (with sample of wire) AND voltmeter in parallel with sample of wire ; measure p.d. / voltage (across wire) and current (in wire) ; for each different metal (named) connected into circuit in turn ; 3 constant variables length of each wire ; thickness of each wire ; same voltage OR same current ; 4 results table suitable headings: metal AND p.d. / voltage AND current ; units: V AND A ; 5 processing results and conclusion repeat measurements for each type of wire to identify / exclude anomalies ; calculate resistance of each sample of wire (using equation given) ; compare values of R to identify any differences ;	7