



Cambridge IGCSE™

COMBINED SCIENCE**0653/63**

Paper 6 Alternative to Practical

May/June 2022**MARK SCHEME**Maximum Mark: 40

Published

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This document consists of 7 printed pages.

Question	Answer	Marks
1(a)	both values correct (5 and 10) ;	1
1(b)	16.7% ;	1
1(c)(i)	axes correctly labelled with percentage / %, correct way round ; linear scale, plotted points fill more than 50% of available space ; points plotted correctly, $\pm$ half a small square ;	3
1(c)(ii)	straight line of best-fit drawn ;	1
1(c)(iii)	increasing oxygen concentration increases number of seeds germinating ;	1
1(d)	increase in height of seedlings / increased size of leaves ;	1
1(e)(i)	to identify anomalous results / seed might be dead / bigger range of data ;	1
1(e)(ii)	<i>any two from:</i> measure/same, volume of water ; same temperature ; leave for longer ; same/more, distance between seeds ;	2
1(f)	type of seeds (cress) / type of lamp / same distance from lamp / number of seeds (12) / time (2 weeks) ;	1
1(g)	<i>test:</i> (bubble gas through) limewater AND observation: (goes) milky ;	1

Question	Answer	Marks
2(a)(i)	10 (cm ³) ; 85 (cm ³) ;	2
2(a)(ii)	0.5 (cm ³ /s) ; 4.25 (cm ³ /s) ;	2

Question	Answer	Marks
2(a)(iii)	the reaction of zinc and iron AND <i>explanation:</i> more gas produced in same amount of time / in 20s ;	1
2(a)(iv)	some gas will escape before you can put the stopper back in / takes time to put stopper in ;	1
2(b)	hydrogen ;	1

Question	Answer	Marks
3	<i>one marking point from each section and any two others</i> <i>(if one section is missing max 6, etc.)</i> 1 apparatus thermometer ; balance ; measuring cylinder / (graduated) pipette / burette ; 2 brief description and safety precautions idea of adding different masses of zinc to (aqueous) iron(II) sulfate ; use at <u>least</u> five different masses ; wear safety goggles with reason, e.g. to keep chemicals out of eyes ; 3 measurements measure appropriate mass of zinc / suggest appropriate mass of zinc ; volume of iron(II) sulfate ; temperature of (aqueous) iron(II) sulfate before adding zinc ; temperature of reaction mixture at end of reaction ; 4 variables constant <u>same / constant</u> concentration of (aqueous) iron(II) sulfate ; <u>same / constant</u> volume of (aqueous) iron(II) sulfate ; 5 processing and drawing a conclusion calculate temperature changes ; take averages from repeated experiments ; plot graph of temperature (change) against mass of zinc ;	7

Question	Answer	Marks
4(a)(i)	2.4 (V) ; 0.21 (A) ;	2
4(a)(ii)	11.4 ;	1
4(b)(i)	<u>both</u> lamps go out / <u>neither</u> lamp is lit ;	1
4(b)(ii)	idea of connecting one lamp (at a time) to the power supply / removing one lamp from the circuit ; broken lamp no reading on the ammeter / does not light / ORA ;	2
4(c)(i)	2 lamps in parallel ; ammeter in main circuit ; correct placement of voltmeter and circuit complete ;	3
4(c)(ii)	X marked in the main circuit between power supply and bulbs;	1
4(d)(i)	2.9 (Ω) ; Answer to 2 sig figs. ;	2
4(d)(ii)	lamps are brighter (in the parallel circuit) / ORA ;	1