



Cambridge IGCSE™

COMBINED SCIENCE**0653/62**

Paper 6 Alternative to Practical

October/November 2021**MARK SCHEME**Maximum Mark: 40

Published

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This document consists of **8** printed pages.

Question	Answer	Marks
1(a)(i)	54 ; 18 ;	2
1(a)(ii)	correct calculation of 17 496 ; given to 2 sig. fig. 17 000 ;	2
1(a)(iii)	linear scale such that points cover more than 50% of the grid ; all points plotted correctly ;	2
1(a)(iv)	smooth, single curve of best fit drawn ;	1
1(a)(v)	interpolation for 3.5 clearly shown on graph ; correct value from interpolation line ;	2
1(b)	enables anomalous results to be identified / to see if results are similar / to calculate a mean / because potato tissue varies ;	1
1(c)	Size – more than 50% of box with 5 main leaves ; Quality – continuous smooth outline with no shading ; Detail – veins and correct number of leaflets drawn (5 large and 2 small in correct location) ;	3

Question	Answer	Marks
2(a)(i)	to protect <u>eyes</u> (from corrosive liquids) ;	1
2(a)(ii)	measuring cylinder ;	1
2(a)(iii)	initial reading: <u>10.0</u> (cm ³) ; reading when litmus changes to red: <u>27.3</u> (cm ³) ;	2
2(a)(iv)	volume of acid added is 17.3 ;	1
2(a)(v)	idea of not knowing the correct volume of acid / so that you can measure to the nearest drop of acid / there is a sudden change of colour ;	1
2(b)(i)	black solid ;	1
2(b)(ii)	removes the colour ;	1
2(c)	<i>any three from:</i> heat (solution) ; until crystals start to form / until saturated / to reduce the volume / to evaporate (the solution) ; idea of leaving (after heating) to cool ; filter crystals from solution / dry crystals on filter paper ;	3
2(d)(i)	sodium ;	1
2(d)(ii)	sulfate ;	1

Question	Answer	Marks
3(a)(i)	80 (cm) ;	1
3(a)(ii)	1.2 (N) ;	1
3(a)(iii)	read perpendicular to the scale ;	1
3(a)(iv)	measures same height from bench at two different points ;	1
3(b)	calculation seen / 117 (g) ; to 2 sig. fig. / 120 (g) ;	2
3(c)	yes AND same value to 2 sig. figs. / answers close to each other / AW ;	1

Question	Answer	Marks
4	one mark each from section and then any other three marks 1. apparatus timer and thermometer ; measuring cylinder ; 2. method place cooler in freezer ; use water at room temperature ; start timer when container of water goes into sleeve ; 3. measurements 200 cm³ of water, measured / added; time it takes to cool to below 10 °C / measure temperature of the water after 5 minutes ; measure temperature of water after 30 minutes ; 4. conclusion calculate average from repeats ; if temperature drops to below 10 °C in under 5 minutes, claim 1 is true / if temperature remains below 10 °C for 30 mins, claim 2 is true ;	7