



Cambridge IGCSE™

COMBINED SCIENCE**0653/61**

Paper 6 Alternative to Practical

October/November 2020**MARK SCHEME**Maximum Mark: 40

Published

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

Question	Answer	Marks
1(a)	fills more than 50% space ; continuous line around outside, pith and segments indicated ; 8 or more segments within the pith and gap in centre shown ;	3
1(b)(i)	volume remaining = 9.2 ;	1
1(b)(ii)	calculation of volume added = 0.8 ;	1
1(b)(iii)	calculation of average shown = $(0.6 + 0.7 + 0.8) \div 3 = 0.7$;	1
1(b)(iv)	to identify, anomalous results / outliers / to check results are, the same / similar ;	1

Question	Answer	Marks
2	1 mark from each section and then additional marks up to max 7 1 prediction: Drink A tests positive for fat and sugar test <u>AND</u> drink B tests negative fat and low sugar ; 2 apparatus test-tube / beaker / boiling tube / conical flask / pipette ; measuring cylinder / balance ; heat source / water bath (for sugar test) ; 3 chemicals (fat test) ethanol ; (sugar) Benedict's ; 4 method, variables, safety heat / warm for Benedict's test ; keep ethanol away from naked flame / identifies ethanol is flammable / identifies heating hazard for Benedict's test / Benedict's is, harmful / toxic ; same, volume / mass of drink tested ; same, volume / concentration, of reagents / same number of drops ; 5 observations (fat) positive / drink A gives (white) emulsion / milky OR negative / drink B gives no (white) emulsion ; (sugar) positive / drink A Benedict's goes orange / red ; (sugar) low sugar / drink B Benedict's goes yellow / green ;	7

Question	Answer	Marks
3(a)	test: lighted splint AND observation: pops ;	1
3(b)(i)	28 ; 58 ;	2
3(b)(ii)	both axes labelled, time in s AND concentration in M ; time on vertical axis, scale linear and points cover more than half of the grid ; 4 points plotted correctly in linear portion of the grid ;	3
3(b)(iii)	straight best-fit line drawn ;	1
3(b)(iv)	as concentration increases, time (for magnesium to fully react) decreases ;	1
3(b)(v)	time for 1.8 M from graph ;	1
3(b)(vi)	measure the time taken for fixed, volume / amount, of gas to be produced OR measure, volume / amount, of gas for a fixed time ;	1
3(b)(vii)	line C underneath line B ;	1
3(c)	container with contents, bung and delivery tube ; gas syringe / upturned measuring cylinder in water ;	2

Question	Answer	Marks
4(a)(i)	130 (cm ³) ;	1
4(a)(ii)	353.2 (g) ;	1
4(a)(iii)	correct calculation $[4(a)(ii) \div 4(a)(i)]$; 2.7 (g/cm ³) 2 s.f. ;	2
4(b)(i)	X marked somewhere <u>underneath</u> CD AND at least 6 cm to the right of D ;	1
4(b)(ii)	normal drawn at E ;	1
4(b)(iii)	35° ;	1
4(c)	line through P ₃ and P ₄ AND points G and H correctly labelled ; lines EJ and EG both present and drawn with ruler and thin lines ;	2
4(d)(i)	length of EG correct to nearest 0.1 cm $\pm$ 0.2 cm ;	1
4(d)(ii)	length of EJ correct to nearest 0.1 cm $\pm$ 0.2 cm ;	1
4(d)(iii)	n correct based on candidate values in 4(d)(i) and 4(d)(ii) ;	1
4(e)	answer yes / no suitable for candidate value of n values close enough to each other / too far apart ;	1