



Cambridge IGCSE™

COMBINED SCIENCE

0653/62

Paper 6 Alternative to Practical

October/November 2020

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.

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

Question	Answer	Marks
1(a)	fills more than 50% of the space ; continuous smooth outline with lines and circles seen ; 11 sections with circles at either end ;	3
1(b)(i)	86 mm ;	1
1(b)(ii)	correct calculation 0.057 ;	1
1(c)	<i>similarity</i> : shape, e.g. round, sections ; <i>difference</i> : pattern, e.g. internal structure different, holes / pores / AW, number of sections, size ;	2

Question	Answer	Marks
2	1 mark from each section and then additional 3 marks 1 apparatus beaker / test-tube / conical flask ; measuring cylinder / balance / ruler ; stop-watch / timer ; scalpel / cork borer AW ; 2 method and measurements cut potato / carrot, into pieces of same size ; immerse / submerge, in salt solution ; measure mass / dimensions, at beginning AND end ; dry before final mass ; repeats ; 3 control variables same, mass / volume / surface area of tissue ; same, volume / concentration, of salt solution ; same temperature ; same time ; 4 processing/conclusion calculate surface area of tissue ; calculate / compare, change in, mass / volume / surface area ; calculate / compare, <u>percentage</u>, change / loss in mass ; plant tissue which loses most, mass / volume / surface area, has lost most water ORA	7

Question	Answer	Marks
3(a)(i)	21.0 ; 38.0 ; 37.5 ;	3
3(a)(ii)	sensible linear scale ; points plotted correctly ;	2
3(a)(iii)	2 lines and intersection ;	1
3(b)	sulphuric acid labelled ; 2 lines and intersection for sulphuric acid ;	2
3(c)	max. temps from graphs ;	1
3(d)	(colour changes to) red ;	1
3(e)(i)	sulfuric acid AND the 2 values of intersection volume quoted / sulfuric acid volume for max temp is less ORA ;	1
3(e)(ii)	sulfuric acid has more (2) hydrogen (atoms / ions) ORA / dibasic ;	1
3(e)(iii)	digital thermometer / data logger (attached to thermocouple) ;	1

Question	Answer	Marks
4(a)	correct symbols for ammeter and voltmeter ; ammeter in series and voltmeter in parallel with cell ;	2
4(b)(i)	1.80 (V) ;	1
4(b)(ii)	pointer at 1.8 (V) ;	1
4(b)(iii)	line on graph extended to cut y-axis ; 2.34 V $\pm$ 0.02 V ;	2
4(b)(iv)	clear triangle drawn on graph, using over half of best-fit line ; calculation of gradient correct using values from graph ; gradient = $(-)$ 1.22 $\pm$ 0.10 (Ω) ;	3
4(c)	0.61 (A) ; 1.60 (V) ;	2
4(d)	take (p.d.) readings at higher values of current / current > 0.70 A ; (if prediction correct) these readings do not fit the straight line ORA ;	2