Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

COMBINED SCIENCE **0653/62**

Paper 6 Alternative to Practical **March 2019**

MARK SCHEME

Maximum Mark: 60

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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Question	Answer	Marks
1(a)(i)	1.5; 24.0;	**2**
1(a)(ii)	dish **A**, 24 °C / temperature 2 **and** dish **B**, 1.5 °C / temperature 1 **and** greater growth in A;	**1**
1(b)(i)	56 **and** 46 **and** 61 ;	**1**
1(b)(ii)	correct calculation of average ;	**1**
1(c)	starch present ; no reducing sugars ;	**2**

Question	Answer	Marks
2	**Minimum of one from each:** **suitable apparatus listed / described** beaker / container and ruler, beaker / container and balance **description of method** in solution (salt) and soak (amount of time) in water and soak blot dry different salt concentration care with (sharp) knife / (sharp) knife take care not cut (fingers) repeats **controlled variables** temperature, time size / mass / length of cylinder same volume solution **measurement and processing** length **and** mass of cylinder start **and** end comparison of length vs conc **and** mass vs conc results, percentage change ;;;;;;;	**7**

Question	Answer	Marks
3(a)(i)	30.0 ; 16.5 ; 10.0 ;	**3**
3(a)(ii)	all 6 changes subtracted correctly AND correct sign ;	**1**
3(b)	to get even temperature throughout ;	**1**

Question	Answer	Marks
3(c)(i)	linear scales AND over half of grid ; 6 correct plots ;	2
3(c)(ii)	best-fit straight line AND labelled S ;	1
3(c)(iii)	best-fit straight line AND labelled A ;	1
3(d)(i)	value from their graph AND marking on graph to show this ;	1
3(d)(ii)	value from their graph divided by 2 ; since double volume of water to heat ;	2
3(e)	not all of the potassium carbonate would dissolve ;	1

Question	Answer	Marks
4(a)(i)	21 (mm) ;	1
4(a)(ii)	took reading perpendicular to ruler / ruler close to spring / use of fiducial aid AVP ;	1
4(b)(i)	112 (mm) ;	1
4(a)(ii)	3.0 N ;	1
4(a)(iii)	0.027 ;	1
4(c)(i)	52 (mm) ;	1
4(c)(ii)	0.058 / 0.0576 ;;	2
4(d)	0.013 (N / mm) ;	1

Question	Answer	Marks
4(e)(i)	correct calculation of 2*k* and 0.5*k* ;	**1**
4(e)(ii)	explanation consistent with their results AND reference made to experimental error ;	**1**
4(f)(i)	larger extensions reduces the effect of measuring errors OWTTE ;	**1**
4(f)(ii)	if mass too large, spring breaks / (mass) hits the bench / apparatus topples / spring deforms ;	**1**