Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CO-ORDINATED SCIENCES **0654/51**

Paper 5 Practical Test **October/November 2017**

MARK SCHEME

Maximum Mark: 45

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)	time / s ;	**1**
1(b)(i)	result for 4% recorded ;	**1**
1(b)(ii)	full set of results recorded ; in whole seconds for all readings present ; increases in time down the table ;	**3**
1(c)	3 and 2 ;	**1**
1(d)(i)	axes labelled with units ; suitable linear scale using at least half the grid ; all 4 points correctly plotted ± half small square ; best-fit straight line ;	**4**
1(d)(ii)	correct reading from graph ± half small square ;	**1**
1(d)(iii)	decreasing concentration increases time ORA ;	**1**
1(e)(i)	all temperatures below between 0 and 100 inclusive ; at least 3 between 10 and 50 inclusive ;	**2**
1(e)(ii)	**two** from: volume of milk ; same type of milk ; pH ; concentration of enzyme ; volume of enzyme ; level of clarity ;	**1**

Question	Answer	Marks
2(a)(i)	both temperatures recorded AND $T_2 > T_1$; temperature recorded to the nearest 0.5 °C ; white mixture (not solution) / milky ;	**3**
2(a)(ii)	blue / purple **and** 10–12;	**1**
2(a)(iii)	milky / white ppt ;	**1**
2(b)(i)	blue ppt ; dark(er) blue solution ; (**J** is) copper (nitrate) ;	**3**
2(b)(ii)	(slight) blue ppt. / blue solid ;	**1**
2(c)(i)	temperature change **and** sign ;	**1**
2(c)(ii)	exothermic ;	**1**
2(c)(iii)	sodium hydroxide ;	**1**
2(c)(iv)	basic / alkaline ;	**1**
2(c)(v)	(**H** is) calcium (oxide) ; **H** + water gives limewater for CO_2 test in **(a)(iii)** / **F** is limewater / calcium oxide reacts exothermically with water / **H** and water has pH > 7 ;	**2**

Question	Answer	Marks
3(a)(i)	*V* and *I* recorded in table for 0 cm ; *V* < 2.5 V and *I* < 1.0 A ;	**2**
3(a)(ii)	all values recorded ; *V* values decreasing ; *I* values decreasing ; **either** *V* to at least 1 d.p. **or** *I* to at least 2 d.p. ;	**4**
3(b)	there is an ammeter reading / current still flowing ;	**1**
3(c)(i)	all resistance values correct and correctly rounded ; all resistance values consistently to 2 or 3 significant figures ;	**2**
3(c)(ii)	to prevent wire getting hot / resistance of wire changing / cell running down ;	**1**
3(d)(i)	W / J per s;	**1**
3(d)(ii)	all power values correct ; power values decreasing ;	**2**
3(e)	no / yes (to match results) and actual values used to show relationship / reference to how P changes with I ; doubling *I* does not double *P* (for no) / doubling *I* doubles *P* (for yes) or *P* / *I* not constant (for no) or *P* / *I* constant (for yes) ;	**2**