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**CO-ORDINATED SCIENCES**

**0654/51**

Paper 5 Practical Test

**October/November 2017**

MARK SCHEME

Maximum Mark: 45

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**Published**

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This document consists of **4** printed pages.

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 $\pm$ half small square ; best-fit straight line ;	4
1(d)(ii)	correct reading from graph $\pm$ 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)	<b>two</b> 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 <b>and</b> 10–12;	1
2(a)(iii)	milky / white ppt ;	1
2(b)(i)	blue ppt ; dark(er) blue solution ;  ( <b>J</b> is) copper (nitrate) ;	3
2(b)(ii)	(slight) blue ppt. / blue solid ;	1
2(c)(i)	temperature change <b>and</b> sign ;	1
2(c)(ii)	exothermic ;	1
2(c)(iii)	sodium hydroxide ;	1
2(c)(iv)	basic / alkaline ;	1
2(c)(v)	( <b>H</b> is) calcium (oxide) ; <b>H</b> + water gives limewater for CO <sub>2</sub> test in ( <b>a</b> )(iii) / <b>F</b> is limewater / calcium oxide reacts exothermically with water / <b>H</b> 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 ; <b>either</b> $V$ to at least 1 d.p. <b>or</b> $I$ 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