



COMBINED SCIENCE

0653/51

Paper 5 Practical Test

October/November 2017

MARK SCHEME

Maximum Mark: 30

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)	result for 4% recorded ;	1
1(a)(ii)	full set of results recorded ; all readings present in whole seconds for all readings present ; increases in time down the table ;	3
1(b)(i)	suitable linear scale using at least half the grid ; all 4 points correctly plotted $\pm$ half small square ; best-fit line ;	3
1(b)(ii)	decreasing concentration increases time ORA ;	1
1(c)	all temperatures between 0 and 100 inclusive ; at least 3 between 10 and 50 inclusive ;	2

Question	Answer	Marks
2(a)(i)	filtrate and residue correctly labelled ;	1
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)	sodium hydroxide ;	1
2(c)(ii)	(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 ; $V < 2.5 \text{ V}$ and $I < 1.0 \text{ A}$;	2
3(a)(ii)	all values recorded ; V values decreasing ; I values decreasing ; either V to at least 1 d.p. or / to at least 2 d.p. ;	4
3(b)	all power values correct ; power values decreasing ;	2
3(c)	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



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Question	Answer	Marks				
1(a)	quality of drawing using at least half the box ; root correctly labelled ; shoot correctly labelled ;	3				
1(b)(i)	sensible measurement in mm ;	1				
1(b)(ii)	correct measurement in mm ;	1				
1(b)(iii)	magnification correctly calculated ;	1				
1(c)(i)	<table><tr><td>biuret</td><td>iodine</td></tr><tr><td>purple ;</td><td>blue-black ;</td></tr></table>	biuret	iodine	purple ;	blue-black ;	2
biuret	iodine					
purple ;	blue-black ;					
1(c)(ii)	reducing sugar, protein and starch ;; all 3 for 2 marks, 1 or 2 named for 1 mark	2				

Question	Answer		Marks
2(a)(i)	solution	observation	4
	ammonium sulfate	no reaction / no ppt. ;	
	copper sulfate	blue ppt ;	
	iron(III) sulfate	brown / orange ppt ;	
	zinc sulfate	white ppt ;	
2(a)(ii)	red litmus goes blue ;		1
2(b)	different coloured ppts. / different results ; same coloured ppts. as NaOH or ammonia ; ammonia from ammonium (as with NaOH) / no ammonia from ammonium (unlike NaOH) ;		3
2(c)(i)	bubbles / effervescence ;		1

Question	Answer	Marks
2(c)(ii)	should have added dilute nitric acid or dilute hydrochloric acid before adding the barium chloride ;	1
3(a)(i)	θ recorded at $t = 0$ for 200 cm ³ ;	1
3(a)(ii)	for 200 cm ³ ; t values correct ; all values of temperature recorded ; θ values decreasing ;	3
3(b)	larger change over 180 s for 100 cm ³ beaker ;	1
3(c)	to allow maximum temperature of hot water to be recorded / wtte ;	1
3(d)	statement matching temperature changes and justification referring to results ; justification referring to temperature changes <u>in the same time</u> ;	2
3(e)	any two from: room temperature / <u>initial</u> water temperature / same volume(s) of water / keep thermometer the same depth ;;	2