



CO-ORDINATED SCIENCES

0654/52

Paper 5 Practical Test

October/November 2017

MARK SCHEME

Maximum Mark: 45

Published

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

Question	Answer	Marks								
1(a)	quality of drawing using at least half the box ; root correctly labelled ; stem correctly labelled ;	3								
1(b)(i)	correct measurement in mm ;	1								
1(b)(ii)	correct measurement (in mm) ;	1								
1(b)(iii)	magnification correctly calculated ;	1								
1(c)	placed in a suitable container with water ; kept in a warm place ;	2								
1(d)(i)	Benedict's ;	1								
1(d)(ii)	<table border="1" data-bbox="322 745 1229 882"> <tr> <td></td> <td>Benedict's test</td> <td>biuret test</td> <td>iodine test</td> </tr> <tr> <td>nutrient tested for</td> <td>Reducing sugar</td> <td>protein</td> <td>starch</td> </tr> </table> <p>observations correct;</p>		Benedict's test	biuret test	iodine test	nutrient tested for	Reducing sugar	protein	starch	1
	Benedict's test	biuret test	iodine test							
nutrient tested for	Reducing sugar	protein	starch							
1(d)(iii)	<table border="1" data-bbox="322 986 1229 1120"> <tr> <td>Benedict's</td> <td>biuret</td> <td>iodine</td> </tr> <tr> <td>yellow / green / orange / red ;</td> <td>purple ;</td> <td>blue-black ;</td> </tr> </table>	Benedict's	biuret	iodine	yellow / green / orange / red ;	purple ;	blue-black ;	3		
Benedict's	biuret	iodine								
yellow / green / orange / red ;	purple ;	blue-black ;								
1(d)(iv)	reducing sugar, protein and starch all three = 2 marks one or two named = 1 mark	2								

Question	Answer	Marks										
2(a)(i)	neat table with appropriate headings ; <table border="1" data-bbox="322 284 1229 539"> <thead> <tr> <th data-bbox="322 284 779 331">solution</th> <th data-bbox="779 284 1229 331">observation</th> </tr> </thead> <tbody> <tr> <td data-bbox="322 331 779 379">ammonium sulfate</td> <td data-bbox="779 331 1229 379">no reaction / no ppt. ;</td> </tr> <tr> <td data-bbox="322 379 779 427">copper sulfate</td> <td data-bbox="779 379 1229 427">blue ppt ;</td> </tr> <tr> <td data-bbox="322 427 779 475">iron(III) sulfate</td> <td data-bbox="779 427 1229 475">brown / orange ppt ;</td> </tr> <tr> <td data-bbox="322 475 779 539">zinc sulfate</td> <td data-bbox="779 475 1229 539">white ppt ;</td> </tr> </tbody> </table>	solution	observation	ammonium sulfate	no reaction / no ppt. ;	copper sulfate	blue ppt ;	iron(III) sulfate	brown / orange ppt ;	zinc sulfate	white ppt ;	5
solution	observation											
ammonium sulfate	no reaction / no ppt. ;											
copper sulfate	blue ppt ;											
iron(III) sulfate	brown / orange ppt ;											
zinc sulfate	white ppt ;											
2(a)(ii)	(damp) red litmus and goes blue ;	1										
2(b)(i)	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(b)(ii)	add H to iron(II) sulfate ;	1										
2(c)(i)	limewater turns milky ;	1										
2(c)(ii)	carbon dioxide produced / 2(c)(i) is the test for a carbonate / sodium sulfate would not give a gas ; H is sodium carbonate ;	2										
2(c)(iii)	barium carbonate	1										
2(c)(iv)	should have added dilute nitric acid or dilute hydrochloric acid before adding the barium nitrate ;	1										

Question	Answer	Marks
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)	axes labelled with units ; suitable choice of scales (\geq half the grid used) ; at least 5 plots correct to half a small square (penalise 'blobs') ; good best-fit curve judgement ;	4
3(e)	gradient greater / graph steeper at start of experiment	1
3(f)	statement matching temperature changes and justification referring to results ; justification referring to temperature changes <u>in the same time</u> ;	2
3(g)	any two from: room temperature / <u>initial</u> water temperature / same volume(s) of water / keep thermometer the same depth ;;	2