



**Cambridge International Examinations**  
Cambridge International General Certificate of Secondary Education

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**COMBINED SCIENCE**

**0653/51**

Paper 5 Practical Test

**May/June 2017**

MARK SCHEME

Maximum Mark: 30

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**Published**

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

Question	Answer	Marks																
1(a)	Benedict's test ;	1																
1(b)	<table border="1" data-bbox="651 280 1588 552"> <thead> <tr> <th></th> <th>Benedict's test</th> <th>biuret test</th> <th>iodine test</th> </tr> </thead> <tbody> <tr> <td>banana</td> <td>yellow / green / orange / red</td> <td>blue / no change</td> <td>blue-black</td> </tr> <tr> <td>chick peas</td> <td>blue / no change</td> <td>purple</td> <td>blue-black</td> </tr> <tr> <td>egg white</td> <td>blue / no change</td> <td>purple</td> <td>brown / no change</td> </tr> </tbody> </table> <p>one mark per column ;</p>		Benedict's test	biuret test	iodine test	banana	yellow / green / orange / red	blue / no change	blue-black	chick peas	blue / no change	purple	blue-black	egg white	blue / no change	purple	brown / no change	3
	Benedict's test	biuret test	iodine test															
banana	yellow / green / orange / red	blue / no change	blue-black															
chick peas	blue / no change	purple	blue-black															
egg white	blue / no change	purple	brown / no change															
1(c)(i)	(reducing sugar) <b>and</b> starch ;	1																
1(c)(ii)	protein <b>and</b> starch ;	1																
1(c)(iii)	protein ;	1																
1(d)	(dissolve in) ethanol;  (add) water;  cloudy / emulsion / milky ;	3																

Question	Answer			Marks									
2(a)(i)		<table border="1"> <tr> <td data-bbox="712 213 981 264"></td> <td data-bbox="981 213 1256 264">solution <b>H</b></td> <td data-bbox="1256 213 1525 264">solution <b>J</b></td> </tr> <tr> <td data-bbox="712 264 981 384">red litmus paper</td> <td data-bbox="981 264 1256 384">red / no change <b>and</b></td> <td data-bbox="1256 264 1525 384">blue <b>and</b></td> </tr> <tr> <td data-bbox="712 384 981 432">blue litmus paper</td> <td data-bbox="981 384 1256 432">blue / no change ;</td> <td data-bbox="1256 384 1525 432">blue / no change ;</td> </tr> </table>		solution <b>H</b>	solution <b>J</b>	red litmus paper	red / no change <b>and</b>	blue <b>and</b>	blue litmus paper	blue / no change ;	blue / no change ;		2
	solution <b>H</b>	solution <b>J</b>											
red litmus paper	red / no change <b>and</b>	blue <b>and</b>											
blue litmus paper	blue / no change ;	blue / no change ;											
2(a)(ii)	<p>(solution <b>H</b> could be) barium nitrate (or) silver nitrate ; (both needed for mark)</p> <p>(solution <b>J</b> could be) ammonia (or) sodium hydroxide ; (both needed for mark)</p>			2									
2(b)(i)		<table border="1"> <tr> <td data-bbox="678 667 958 906">           observations on slowly adding copper sulfate solution         </td> <td data-bbox="958 667 1279 906">           solution <b>H</b>             (white) ppt. / cloudy / milky / turns white   <b>and...</b> </td> <td data-bbox="1279 667 1559 906">           solution <b>J</b>             dark blue (solution) / blue ppt. ;         </td> </tr> <tr> <td data-bbox="678 906 958 1023">           colour of any residue         </td> <td data-bbox="958 906 1279 1023">           ...white ;         </td> <td data-bbox="1279 906 1559 1023">           blue / light blue ;         </td> </tr> </table>	observations on slowly adding copper sulfate solution	solution <b>H</b>  (white) ppt. / cloudy / milky / turns white  <b>and...</b>	solution <b>J</b>  dark blue (solution) / blue ppt. ;	colour of any residue	...white ;	blue / light blue ;		3			
observations on slowly adding copper sulfate solution	solution <b>H</b>  (white) ppt. / cloudy / milky / turns white  <b>and...</b>	solution <b>J</b>  dark blue (solution) / blue ppt. ;											
colour of any residue	...white ;	blue / light blue ;											
2(b)(ii)	<p><b>H</b> is barium nitrate (solution) ;</p> <p><b>J</b> is ammonia (solution) ;</p>			2									
2(c)	<p>(iron(III) sulfate) gives brown ppt. with both sodium hydroxide and ammonia / observations the same with both sodium hydroxide and ammonia ;</p>			1									

Question	Answer	Marks
3(a)(i)	$I$ and $V$ values recorded ;	1
3(a)(ii)	all recorded $I$ values $< 0.5$ A and to at least 2 d.p. ; all recorded $V$ values $< 2.5$ V and to at least 1 d.p. ; $V$ values increasing ;	3
3(a)(iii)	$R$ values recorded to consistent 2 / 3 significant figures ;	1
3(b)	suitable choice of scales ( $\geq$ half the grid used) ; 5 plots correct to half a small square ; good best-fit line judgement ;	3
3(c)(i)	value of $R$ correctly read from graph ;	1
3(c)(ii)	(directly) proportional / as length increases so resistance increases ;	1