Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

COMBINED SCIENCE **0653/52**

Paper 5 Practical Test **March 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.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the March 2017 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(a)</td><td>
<table>
<tr><td>reagent</td><td>Benedict's
tube C</td><td>biuret
tube D</td><td>iodine solution
tube E</td></tr>
<tr><td>solution A</td><td>yellow / green / orange / red</td><td>blue</td><td>blue-black</td></tr>
<tr><td>solution B</td><td>blue</td><td>lilac</td><td>blue-black</td></tr>
</table>
full set of results irrespective of colour recorded ;
colours correct for A ;
colours correct for B ;
</td><td>3</td></tr>
<tr><td>1(b)</td><td>both contain starch ;

A: <u>reducing</u> sugar ;

B: protein ;</td><td>3</td></tr>
<tr><td>1(c)</td><td>wore goggles / tied back hair / used tongs and due to chemical tests / hot water</td><td>1</td></tr>
<tr><td>1(d)</td><td>(dissolve in) ethanol ;
cloudy / emulsion and water added ;
no naked flames ;</td><td>3</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(a)</td><td>filtrate = colourless
and
residue = black ;</td><td>1</td></tr>
<tr><td>2(b)(i)</td><td>no visible reaction / colourless solution / no bubbles / no ppt.
and
not a carbonate ;</td><td>1</td></tr>
<tr><td>2(b)(ii)</td><td>white ppt ;
chloride ;</td><td>2</td></tr>
<tr><td>2(b)(iii)</td><td>
<table>
<tr><th>test</th><th>observations</th><th>identity of cation</th></tr>
<tr><td>add sodium hydroxide solution / ammonia solution and…</td><td>…no ppt ;</td><td></td></tr>
<tr><td>(add sodium hydroxide solution and warm)</td><td>damp red litmus turns blue ;</td><td>ammonium / NH_4^+ ;

(depends on use of sodium hydroxide)</td></tr>
</table>
</td><td>3</td></tr>
<tr><td>2(c)(i)</td><td>dark blue solution ;
copper / Cu^{2+}
and
copper oxide ;</td><td>2</td></tr>
<tr><td>2(c)(ii)</td><td>reacts quicker ;</td><td>1</td></tr>
</table>

Question	Answer	Marks
3(a)	*V* and *I* recorded for **X** ; *V* to at least 1 decimal place **and** *I* to at least 2 decimal places ;	**2**
3(b)	*V* and *I* recorded for **Y** ;	**1**
3(c)(i)	*R* values correct ;	**1**
3(c)(ii)	V, A, Ω ;	**1**
3(c)(iii)	R_P correct ;	**1**
3(d)(i)	correct series circuit ;	**1**
3(d)(ii)	*V* and *I* recorded ;	**1**
3(d)(iii)	R_S correct and different from R_P ;	**1**
3(e)	statement whether results support suggestion **and** results used for justification with reference to the idea of experimental accuracy ;	**1**