Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICAL SCIENCE **0652/52**

Paper 5 Practical Test **October/November 2018**

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 International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>1(a)(i)</td><td>(J + H) white ppt.;

ppt. disappears / changes to colourless solution ;</td><td>2</td></tr>
<tr><td>1(a)(ii)</td><td>(K + J) white ppt. ;

(all other pairs) no reaction / remains colourless / no change ;</td><td>2</td></tr>
<tr><td>1(b)(i)</td><td>H and J / J and H ;</td><td>1</td></tr>
<tr><td>1(b)(ii)</td><td>K and J / J and K ;</td><td>1</td></tr>
<tr><td>1(b)(iii)</td><td>H is sodium hydroxide AND
J is zinc sulfate AND
K is barium chloride AND
L is hydrochloric acid ;</td><td>1</td></tr>
<tr><td>1(c)(i)</td><td>1 mark for all four underlined responses ;

<table>
<tr><td>solution</td><td>observation when silver nitrate added</td><td>observation when copper sulfate added</td></tr>
<tr><td>H</td><td><u>brown (ppt.)</u></td><td>blue ppt. ;</td></tr>
<tr><td>J</td><td><u>slight white ppt. / no ppt. / remains colourless / no change</u></td><td><u>no reaction / remains clear / colourless / blue solution</u></td></tr>
<tr><td>K</td><td>white ppt. ;</td><td>white ppt ;</td></tr>
<tr><td>L</td><td>white ppt. ;</td><td><u>no reaction / remains clear / blue solution</u></td></tr>
</table></td><td>5</td></tr>
<tr><td>1(c)(ii)</td><td>H confirmed as sodium hydroxide as gives blue ppt. with copper sulfate (solution) ;

L confirmed as hydrochloric acid as gives positive chloride test with silver nitrate (solution) ;

K confirmed as barium chloride as gives positive sulfate test with copper sulfate (solution) ;</td><td>3</td></tr>
</table>

Question	Answer	Marks
2(a)(i)	l_0 recorded to the nearest 0.1 cm **AND** equal to or between 1.0 and 5.5 cm ;	**1**
2(a)(ii)	sensible distance, carefully marked as a straight line ;	**1**
2(a)(iii)	value of l recorded in the table **AND** > l_0 ;	**1**
2(a)(iv)	all readings present ; all lengths increasing ;	**2**
2(b)	**one** from • use of set square / fiducial aid • clamp rule vertically • ruler close to spring • avoidance of parallax **and** explanation • any other sensible precaution ;	**max 1**
2(c)(i)	suitable choice of scales using ⩾ half the grid **AND** starting from (0,0) ; 4 plots correct to half a small square ;	**2**
2(c)(ii)	good best-fit straight line judgement ;	**1**
2(c)(iii)	l_0 correctly read from graph ;	**1**
2(d)	any difference accounted for by reference to experimental error ;	**1**
2(e)(i)	l_A present ;	**1**
2(e)(ii)	weight read correctly from graph ;	**1**
2(f)(i)	$l_W < l_A$;	**1**
2(f)(ii)	value of ρ between 1.5 and 4 g / cm^3 ;	**1**