

---

**COMBINED SCIENCE****0653/52**

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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2017 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level components and some Cambridge O Level components.

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

| Question          | Answer   | Marks    |             |                  |                         |                |            |                   |                      |              |             |          |
|-------------------|--|----------|-------------|------------------|-------------------------|----------------|------------|-------------------|----------------------|--------------|-------------|----------|
| 2(a)(i)           | <table border="1"> <thead> <tr> <th>solution</th> <th>observation</th> </tr> </thead> <tbody> <tr> <td>ammonium sulfate</td> <td>no reaction / no ppt. ;</td> </tr> <tr> <td>copper sulfate</td> <td>blue ppt ;</td> </tr> <tr> <td>iron(III) sulfate</td> <td>brown / orange ppt ;</td> </tr> <tr> <td>zinc sulfate</td> <td>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 ; | <b>4</b> |
| 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)          | red litmus goes blue ;   | <b>1</b> |             |                  |                         |                |            |                   |                      |              |             |          |
| 2(b)              | different coloured ppts. / different results ;<br>same coloured ppts. as NaOH or ammonia ;<br>ammonia from ammonium (as with NaOH) / no ammonia from ammonium (unlike NaOH) ;  | <b>3</b> |             |                  |                         |                |            |                   |                      |              |             |          |
| 2(c)(i)           | bubbles / effervescence ;  | <b>1</b> |             |                  |                         |                |            |                   |                      |              |             |          |

| 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)  | $\theta$ recorded at $t = 0$ for 200 cm <sup>3</sup> ;   | 1     |
| 3(a)(ii) | for 200 cm <sup>3</sup> ;<br>$t$ values correct ;<br>all values of temperature recorded ;<br>$\theta$ values decreasing ;  | 3     |
| 3(b)     | larger change over 180 s for 100 cm <sup>3</sup> beaker ;  | 1     |
| 3(c)     | to allow maximum temperature of hot water to be recorded / wtte ;  | 1     |
| 3(d)     | statement matching temperature changes <b>and</b> justification referring to results ;<br>justification referring to temperature changes <u>in the same time</u> ; | 2     |
| 3(e)     | any two from:<br>room temperature / <u>initial</u> water temperature / same volume(s) of water / keep thermometer the same depth ;;                                | 2     |