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

**PHYSICS** **0625/52**

Paper 5 Practical Test **May/June 2017**

MARK SCHEME

Maximum Mark: 40

**Published**

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| Question | Answer | Marks |
|---|---|---|
| 1(a)(i) | *V* values to at least 1dp and < 3 V | **1** |
| | *I* values to at least 2 dp and < 1 A | **1** |
| | *R* values correct and to 2/3 consistent s.f. | **1** |
| | m, V, A, Ω | **1** |
| 1(a)(ii) | correct difference | **1** |
| 1(b)(i) | potential difference, current and resistance values present with $R_1$ > final value in table | **1** |
| 1(b)(ii) | new set of values present and sensible | **1** |
| | $R_1 = 2 \times R_2 \pm 10\%$ | **1** |
| 1(c) | **to match results** | **1** |
| 1(d) | different heating effects on wires<br>different interpolation of readings between marks on meters<br>difficult to measure length of wire to nearest mm/to judge the position of the sliding contact<br>cell may run down/power of cell may be less<br><br>**Any 2 × 1 mark each** | **2** |
| | **Total:** | **11** |

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| Question | Answer | Marks |
|---|---|---|
| 2(a) | *a* values 40 cm, 35 cm, 30 cm, 25 cm, 20 cm | **1** |
| | *b* values all less than 50 cm and decreasing | **1** |
| 2(b) | Graph:<br>axes correctly labelled | **1** |
| | suitable scales | **1** |
| | all plots correct to ½ small square | **1** |
| | good line judgement, thin, continuous line | **1** |
| 2(c) | expect NO.<br>line does not pass through origin | **1** |
| 2(d)(i) | mass 50 g to 200 g and *mX* seen | **1** |
| 2(d)(ii) | calculations correct | **1** |
| | *Qb* + *mX* must be between 36 and 40 inclusive | **1** |
| 2(e) | not taken the weight of the rule/moment of the weight into account/the pivot is not at the centre of the rule | **1** |
| | **Total:** | **11** |

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| Question | Answer | Marks |
|---|---|---|
| 3(a) | ray-trace:<br>normal in centre of AB and CD (by eye) and FE at 40° to normal | **1** |
| | first $P_1$ $P_2$ distance at least 5 cm | **1** |
| 3(b) | $P_3$ $P_4$ line correctly drawn | **1** |
| | $\alpha$ correctly measured to ± 2° | **1** |
| | $x$ correct to 2 mm | **1** |
| 3(c) | $\alpha$ *and* $\beta$ values 38 – 42 | **1** |
| | correct units for $x$ and $y$ | **1** |
| | all lines present and in approximately correct positions and neat | **1** |
| 3(d) | statement matches readings (expect YES) | **1** |
| | justification to include the idea of within (or beyond, ecf) the limits of experimental accuracy | **1** |
| 3(e) | any one from:<br>large pin separation/pins must be >5 cm apart<br>ensure pins vertical/upright/perpendicular to the paper<br>view bases of pins<br>use thin pencil lines/thin pins | **1** |
| | **Total:** | **11** |

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| Question | Answer | Marks |
|---|---|---|
| 4 | method to include: | |
| MP1 | measurements of temperature of hot water over a period of time/measurement of temperature at start and end of a specified cooling time/measurement of time for a specified temperature drop | **1** |
| MP2 | repeat using variety of fan speeds (blowing air over water surface) | **1** |
| MP3<br>MP4 | two from:<br>room temperature<br>initial temperature of hot water<br>volume/mass/amount of hot water<br>distance of beaker to fan for each speed setting<br>time of cooling<br>temperature drop | **2** |
| MP5 | table with columns for fan speed, time and temperature with units | **1** |
| MP6 | compare readings to find which fan speed produces the greatest temperature drop/takes least time/plot a graph | **1** |
| MP7 | in the same time/for the same temperature drop/compare slopes | **1** |
| | **Total:** | **7** |

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