



PHYSICS

0625/51

Paper 5 Practical

October/November 2017

MARK SCHEME

Maximum Mark: 40

Published

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This document consists of **5** printed pages.

| Question | Answer | Marks |
|-----------|--|-------|
| 1(a) | $a = 19 - 21$ | 1 |
| 1(b)(i) | Q values 1.(0), 2.(0), 3.(0), 4.(0), 5.(0) | 1 |
| 1(b)(ii) | b values all less than 50 cm and decreasing | 1 |
| 1(b)(iii) | Correct 1 / Q values 1.(0), 0.5(0), 0.33(3), 0.25, 0.2(0) | 1 |
| 1(c) | Graph: | |
| | Axes correctly labelled | 1 |
| | Suitable scales | 1 |
| | All plots correct to $\frac{1}{2}$ small square | 1 |
| | Good line judgement, thin, continuous line | 1 |
| 1(d) | Triangle method clearly shown on graph | 1 |
| | At least half line used for triangle method and G recorded | 1 |
| 1(e) | P correct calculation of G/a and in range 1.8 – 2.0 | 1 |

| Question | Answer | Marks |
|--------------|--|-------|
| 2(a)(i) | V to at least 1 dp and $< 3\text{ V}$ | 1 |
| | I to at least 2dp and $< 1\text{ A}$ | 1 |
| 2(a)(ii) | R_1 correct | 1 |
| 2(b)(i),(ii) | New values of V and I and R_2 correct AND $2 \times R_1 \pm 10\%$ | 1 |
| 2(c)(i) | New values of V and I with $I_3 < I_2$ | 1 |
| 2(c)(ii) | R_3 present and V, I, R units seen at least once and not contradicted | 1 |
| 2(d) | Statement to match readings AND Justification to include the idea of within (or beyond, ecf) the limits of experimental accuracy | 1 |
| 2(e) | Determine each resistance in turn | 1 |
| 2(f) | Three resistors in parallel, voltmeter in parallel with resistors and correct symbols for voltmeter and resistors | 1 |
| | Variable resistor in series, correct symbol in a workable circuit | 1 |
| 2(g) | Repeat with different currents | 1 |

| Question | Answer | Marks |
|--------------|---|-------|
| 3(a) | Table: | |
| | $v =$ in range 45 – 80 | 1 |
| | uv correct | 1 |
| | $D = u + v \pm 1$ cm | 1 |
| 3(b) | $v =$ in range 25 – 35 | 1 |
| | $D = u + v \pm 1$ cm | 1 |
| 3(c) | One from: Different size / Different brightness Sharpness / clearness / coloured edges | 1 |
| 3(d)(i),(ii) | f values both rounding to 14 – 16 (cm) | 1 |
| 3(d)(iii) | f_A correct | 1 |
| | 2 or 3 significant figures | 1 |
| 3(e) | Any two from: Difficulty deciding exact position of sharpest image Difficulty measuring to centre of lens Product uv increases problem Image edges blurred / not clear Insufficient sets of results | 2 |

| Question | Answer | Marks |
|----------|---|-------|
| 4 | MP1 Stopwatch (or equivalent) AND (metre) rule / ruler | 1 |
| | MP2 Measure time for 5 (+) oscillations | 1 |
| | MP3 Divide by number of oscillations to find period (T) | 1 |
| | MP4 Repeat for each bob | 1 |
| | MP5 Variable; one from: Initial amplitude / starting position Length of pendulum / thread Number of oscillations | 1 |
| | MP6 Table with column headings for t , or period (T), or both AND d , with correct units | 1 |
| | MP7 Conclusion: Plot graph(s) of d against period (T) or t (or vice versa) OR compare period (T) or t values for different diameters | 1 |