



PHYSICS

0625/62

Paper 6 Alternative to Practical

October/November 2016

MARK SCHEME

Maximum Mark: 40

Published

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| Question | Answer | Marks |
|-----------------|--|----------------------|
| 1(a)(i) | $x = 30.2(\text{cm})$ | 1 |
| 1(a)(ii) | <p>Measure width w of load Place $w/2$ either side of desired position</p> <p>OR</p> <p>draw centre line on load/find centre (of mass) of load and mark side of rule in desired position</p> <p>OR</p> <p>take readings on both sides of the load and find the mean</p> | 1 1 |
| 1(b) | $W = 3.95 (\text{N})$ | 1 |
| 1(c) | new x at least 5 cm different from original and in the range 10 cm–45 cm | 1 |
| 1(d) | <p>two from: difficult to judge the best position of 'almost balanced' is the centre of mass of the ruler exactly over the pivot/has the ruler slipped on the pivot? the load(s) obscure the scale the position of the centre of the load(s) is difficult to judge</p> | 2 |
| 1(e) | <p>3.995 or 4 seen 2 or 3 significant figures (whatever the answer)</p> | 1 1 |
| | Total: | 9 |

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| Question | Answer | Marks |
|-----------------|--|--------------------------|
| 2(a)(i) | $V_1 = 1.7 \text{ (V)}$ $I_1 = 0.32 \text{ (A)}$ | 1 1 |
| 2(a)(ii) | $R = 5.3125 \Omega$ | 1 |
| 2(b) | statement YES justification to include the idea of within the limits of experimental accuracy | 1 1 |
| 2(c)(i) | variable resistor / rheostat | 1 |
| 2(c)(ii) | correct symbol for variable resistor circuit correct | 1 1 |
| | Total: | 8 |

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| Question | Answer | Marks |
|-----------------|--|----------------------------------|
| 3(a) | any two from: length of spring / number of coils diameter / thickness of spring material / type / stiffness / elasticity / spring constant of spring how far spring is displaced / amplitude (of oscillations) | 2 |
| 3(b)(i) | increases has no effect on has no effect on | 1 1 1 |
| 3(b)(ii) | one from: repeats large number of oscillations and divide timing sensor / light gate use a fiducial mark (however expressed) counting down to zero (before starting the timer) | 1 |
| | Total: | 6 |

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| Question | Answer | Marks |
|-----------------|---|--------------|
| 4 | clock/stopwatch <u>and</u> source of heat | 1 |
| | heat to boiling with <u>and</u> without lid | 1 |
| | measure time taken to reach boiling point/boil | 1 |
| | same volume / mass / amount of water | 1 |
| | same starting temperature | 1 |
| | suitable table with column headings <u>and</u> units (seconds or minutes) | 1 |
| | conclusion drawn | 1 |
| | Total: | 7 |

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| Question | Answer | Marks |
|-----------------|---|--|
| 5(a)(i) | 8.4 cm / 84 mm | 1 |
| 5(a)(ii) | initial BP ₂ distance at least 5.0 cm | 1 |
| 5(b) | graph: axes correctly labelled suitable scales all plots correct to ½ small square good line judgement, thin, continuous line | 1 1 1 1 |
| 5(c) | statement to match graph – expect NO justification to match statement with reference to graph line | 1 1 |
| 5(d) | any two from: difficult to judge when pins are exactly in line difficult to ensure that pins are vertical/straight thickness of lines thickness of pins protractor only measures to ±1° | 2 × 1 |
| | Total: | 10 |