



Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

PHYSICS**0625/63**

Paper 6 Alternative to Practical

October/November 2019

MARK SCHEME

Maximum Mark: 40

Published

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Question	Answer	Marks
1(a)	correct voltmeter symbol in parallel with lamp	1
1(b)(i)	$V = 0.6(V)$ and <u>$I = 0.14(A)$</u>	1
1(b)(ii)	$R = 4.3(\Omega)$	1
1(c)	graph:	
	axes labelled correct orientation, with quantity and unit	1
	appropriate scales (plots occupying at least $\frac{1}{2}$ grid)	1
	plots all correct to less than $\frac{1}{2}$ small square and precise plots	1
	well-judged line and <u>thin</u> line	1
1(d)	<u>resistance</u> increases as <u>temperature</u> increases	1
	temperature / resistance increases with <u>length</u>	1
1(e)	variable resistor symbol correct (rectangle with strike-through arrow only)	1
	in series and rest of circuit correct	1

Question	Answer	Marks
2(a)(i)	$u = 5.0(\text{cm})$ and $v = 7.6(\text{cm})$	1
2(a)(ii)	$U = 25(.0)(\text{cm})$ and $V = 38(.0)(\text{cm})$	1
2(a)(iii)	f_1 15(.1)(cm) and 2/3 sig fig and unit	1
2(a)(iv)	move screen slowly / backwards and forwards	1
2(b)(i)	$h_o = 1.5(\text{cm})$ and $h_i = 2.4(\text{cm})$	1
2(b)(ii)	$M = 1.6$ and no unit	1
2(b)(iii)	$f_2 = 15 / 14.6(\text{cm})$	1
2(c)	statement matching results	1
	values within limits of experimental accuracy / owtte	1
2(d)	any one from: - mark position of lens on holder ; - clamp rule / place rule on bench ; - ensure screen, lens and object all perpendicular (to bench) / vertical ; - view scale perpendicularly ; - mark top and bottom of image and measure later	1
2(e)	either method suggested if matching valid explanation e.g. METHOD 1: difficult to measure height of image in method 2 METHOD 1: smaller lengths measured in method 2 / reverse argument METHOD 2: can't measure u and v to lens accurately in method 1	1

Question	Answer	Marks
3(a)	any two from: • rule close / parallel to spring ; • eye perpendicular to reading / use set square ; • clamp rule	2
3(b)	correct calculations of e (4.2, 8.4, 12.6)	1
3(c)(i)	$l_x = 11.4(\text{cm})$	1
3(c)(ii)	$2.0 \text{ N} < W_x < 2.5(\text{N})$	1
	working showing use of ratio/correct logic	1
3(d)	data only given to 1 dp / 2 or 3 sig fig	1
3(e)(i)	statement matching results	1
	correct justification matching statement e.g. • L/e constant • e doubles when L doubles	1
3(e)(ii)	straight line	1
	(line) through origin	1

Question	Answer	Marks
4	MP1 Apparatus beaker and (material for) lid and <u>and</u> thermometer and stop clock (or alternative)	1
	MP2 Method pour (hot) water into container measure temperature of (hot) water over period of time	1
	MP3 Method repeat for different thicknesses of lid	1
	MP4 & MP5 Control variables any two from: • same <u>initial</u>/starting temperature of water ; • same volume of water ; • same size / material / thickness of beaker ; • same material for lid ; • same time for measuring temperature change / same temperature difference for measuring time taken • same room temperature / other environmental condition	2
	MP6 Table suitable column headings and <u>units</u>	1
	MP7 Analysis any one from: • comparison of temperature decrease / rates of cooling with <u>thickness</u> / different <u>lids</u> • draw a suitable graph with axes stated	1