



Cambridge IGCSE™

PHYSICS**0625/62**

Paper 6 Alternative to Practical

May/June 2021

MARK SCHEME

Maximum Mark: 40

Published

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This document consists of **8** printed pages.

Question	Answer	Marks
1(a)	280–350 (cm ³) given to nearest 5 cm ³	1
1(b)	wind string round beaker (several times)	1
	measure the length of the string (and divide by the number of turns)	1
1(c)(i)	h shown clearly on diagram	1
1(c)(ii)	$V_B = 324(.064)$ (cm ³)	1
	given to 2 or 3 significant figures	1
1(d)(i)	208 (g)	1
1(d)(ii)	$m_s = 516$ (g) / 515.7 (g)	1
1(d)(iii)	$\rho = 1.59$ / 1590	1
	g / cm ³ / kg / m ³	1
1(e)	diagram showing a clear <u>line of sight</u> drawn at right angles to measuring cylinder level with the top of its contents	1

Question	Answer	Marks
2(a)	normal (any length) at centre of MR	1
	CD and EF in correct positions	1
2(b)	$i = 20^\circ \pm 1^\circ$	1
2(c)	P ₁ P ₂ distance at least 5 cm / 50 mm and at most 15 cm / 150 mm	1
2(d)(i)	$a = 1.8 \pm 0.1$ (cm) <u>and</u> $b = 3.5 \pm 0.1$ (cm)	1

Question	Answer	Marks
2(d)(ii)	correct unit seen at least once and not contradicted	1
2(d)(iii)	$a/b = 0.51$ / correct from candidate's measurements	1
2(e)	$a/b = 0.506$	1
	both values of a/b with no unit	1
2(f)	(expect YES and) values are within the limits of experimental accuracy / error / uncertainty or values (very) close / close enough / not (very) far apart / both round to the same number / approximately equal / within 5% (or 10%) of each other	1
2(g)	any one from: difficulty in lining up pins size of pin holes / thickness of pins / thickness of lines thickness of mirror	1

Question	Answer	Marks
3(a)(i)	$V_1 = 0.6(0)$ (V)	1
	$I_1 = 0.32$ (A)	1
3(a)(ii)	$R_1 = 1.875$ (Ω)	1
	Units Ω , V, A, all correct	1

Question	Answer	Marks
3(b)	graph: axes correctly labelled with quantity and unit and right way round	1
	suitable scales	1
	all plots correct to $\frac{1}{2}$ small square	1
	good line judgement, thin, continuous line	1
3(c)	method shown clearly on graph	1
	1 correctly read to $\pm \frac{1}{2}$ small square	1
3(d)	5.5–6.5 (Ω) inclusive	1

Question	Answer	Marks
4	MP1 apparatus: diagram: spring attached to a fixed support, (load and metre rule)	1
	MP2 at least three metals listed	1
	MP3 method: measure / record length of the spring <u>and</u> add load(s) <u>and</u> measure / record new length OR add load(s) and measure / record the extension	1
	MP4 repeat with other springs of different materials	1
	MP5 key variables: one from: original length of spring / diameter of spring / number of turns (of the spring) / diameter of the wire (of the spring) / length of the wire (of the spring)	1
	MP6 table: table with columns for metal and extension / length with correct unit(s) (in headings or in the body of the table)	1
	MP7 conclusion: plot a graph of <u>extension</u> against load (or axes other way around) for each spring (and compare) OR compare <u>extensions</u> for a fixed load for each spring OR plot a bar chart of extension against metal for a fixed load	1