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**PHYSICS**

**0625/62**

Paper 6 Alternative to Practical

**October/November 2017**

MARK SCHEME

Maximum Mark: 40

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**Published**

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

Question	Answer	Marks
1(a)(i)	$d = 5.0$ (cm)	<b>1</b>
1(a)(ii)	$D = 50$ cm	<b>1</b>
1(a)(iii)	clear correct use of set-square AND vertical ruler	<b>1</b>
1(b)(i)	28.12	<b>1</b>
1(b)(ii)	1.406 / 1.41 / 1.4	<b>1</b>
	unit s / secs / seconds seen in <b>1(b)(i)</b> or <b>1(b)(ii)</b> at least once	<b>1</b>
1(c)	statement to match readings justification to include the idea of within (or beyond e.c.f.)	<b>1</b>
	the limits of experimental accuracy e.g. (very) close / almost equal	<b>1</b>
1(d)	final box ticked	<b>1</b>
1(e)	V, V, V, V, P, P all correct = 2 marks 4 or 5 correct = 1 mark Fewer than 4 correct = 0 marks	<b>2</b>

Question	Answer	Marks
2(a)	24 (°C)	1
2(b)	34 (°C)	1
2(c)	30 (°C) AND °C seen once in <b>2(a)</b> , <b>2(b)</b> or <b>2(c)</b>	1
2(d)	to make sure that the temperature is the same throughout / to allow the water to mix and reach its final temperature faster	1
2(e)	heat loss (to surroundings) / time delays in transferring the water / did not wait for thermometer readings to stabilise / (initial) temperatures of the (cold / hot) <u>water</u> not the same	1
2(f)	insulation	1
2(g)	same starting temperature (of hot / cold water) / same room temperature	1
2(h)	recognisable measuring cylinder	1
	perpendicular viewing	1
	to bottom of meniscus	1

Question	Answer	Marks
3(a)	Graph	
	axes correctly labelled	1
	suitable scales	1
	all plots correct to $\frac{1}{2}$ small square	1
	good best-fit curve judgement thin, continuous line based on all the plots	1
3(b)(i)	2 points and straight line correct	1
3(b)(ii)	$u_1$ and $v_1$ read correctly to $\frac{1}{2}$ small square	1
3(b)(iii)	correct (calculation of) $f$ from candidate's values $f$ value <u>rounding to</u> 14 – 16cm	1
3(c)	any <b>two</b> from: upside down less bright / brighter coloured edges different sizes	2
3(d)	any <b>two</b> from: darkened room / bright object object AND lens AND screen perp. to bench / vertical object and lens same height (from bench) move <u>screen</u> ( <b>not</b> lens) slowly / backwards and forwards clamp rule / fix rule to bench	2

Question	Answer	Marks
4	<b>method:</b> <b>MP1</b> measure length of band	1
	<b>MP2</b> hang load, measure new length	1
	<b>MP3</b> repeat with different thicknesses/widths	1
	<b>control variable:</b> <b>MP4</b> use same (original) length of band each time	1
	<b>table:</b> <b>MP5</b> table with columns for thickness, (load) and length / extension with units	1
	<b>conclusion:</b> <b>MP6</b> plot a graph of extension / length against thickness (for the same load) OR load against extension / length for different thicknesses OR comparison via a table e.g. compare extensions / lengths of different thicknesses for the same load	1
	<b>one additional point:</b> <b>MP7</b> use same load / same range of loads use at least 5 thicknesses / take at least 5 different readings to plot a graph show how to measure extension e.g. $l - l_0$ use same type / material of rubber band	1