Cambridge O Level

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Cambridge Ordinary Level

PHYSICS **5054/41**

Paper 4 Alternative to Practical **May/June 2016**

MARK SCHEME

Maximum Mark: 30

Published

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1	**(a)**		Any 2: Insert another cell / decrease the resistance of the variable resistor / increase voltage of power supply	B2
	(b)		Table drawn with headings (Current and Number of paperclips)	B1
			Unit for current (Amps)	B1
			Correct data in table	B1
2	**(a)**	**(i)**	10.7366…	C1
			10.7 s	B1
		(ii)	1.07 s	B1
		(iii)	Time for one oscillation very small / difficult to measure / time for tens swings is more accurate gives an average	B1
			Comparison of 0.2 s to *T* i.e.is a large proportion is significant	B1
	(b)	**(i)**	Table completed	B0
		(ii)	axes labelled quantity and unit	B1
			scales linear	B1
			points plotted accurately	B1
			best fit curve drawn	B1
		(iii)	As N increases, T increases	B1
		(iv)	(0.65 ± 0.01) s Unit needed	B1
	(c)		Different lengths would not give a reliable (allow accurate) result / graph not smooth / introduces another variable / result for **(b)(iv)** not valid.	B1

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3 **(a)** 22.8 C1

23 g (2 significant figures only) B1

(b) **(i)** Measuring cylinder / burette / graduated cylinder B1

(ii) **1** Liquid P B1

Only liquid P is denser than water B1

(ii) **2** B because liquid P is denser than oil. B1

(c) Wood is less dense than water but more dense than oil / density of wood between 0.9 and 1.0 B1

4 **(a)** Thermometer / pyrometer B1

(b) Water in test tubes and thermometer / pyrometer B1

Left for a period of time / pyrometer connected to galvanometer B1

Readings of initial and final temperatures / temperature fall / readings taken from the galvanometer B1

(c) Any 2: B2
Same volume of water
Same initial starting temperature
Same length of time / pyrometer must be an equal distance from the test tubes.

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