



Cambridge International Examinations
Cambridge Ordinary Level

PHYSICS

5054/41

Paper 4 Alternative to Practical

May/June 2016

MARK SCHEME

Maximum Mark: 30

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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Page 2	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2016	5054	41
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

Page 3	Mark Scheme	Syllabus	Paper
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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.