
PHYSICS**5054/41**

Paper 4 Alternative to Practical

October/November 2019

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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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

PUBLISHED**Generic Marking Principles**

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)	moves the <u>screen</u> forwards and backwards / moves screen slowly	B1
1(b)(i)	6(.0 cm) and 4.3 (cm) ± 0.1 (cm)	B1
1(b)(ii)	2.5 (cm)	B1
1(b)(iii)	repeat (and average)	B1

Question	Answer	Marks
2(a)(i)1	2.2 cm	B1
2(a)(i)2	correctly drawn centred on 5.0 cm	B1
2(a)(ii)	to ensure that the correct number of rings is recorded / to ensure the rings are placed in correct position / to know when ruler is close to balance	B1
2b)(i)	axes labelled quantity and unit, correct way round	B1
	scales linear from (0,0), not awkward	B1
	points plotted accurately	B1
	best fit curve drawn	B1
2(b)(ii)	lines clearly shown on the graph	B1
	range 50 to 53	B1
2(b)(iii)	114	C1
	110	A1
2(b)(iv)	balance	B1
2(c)	use rings of smaller mass / use combination of heavier rings and smaller rings to get balanced	B1

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Question	Answer	Marks
3(a)	ammeter in series	B1
	voltmeter in parallel across lamp	B1
3(b)(i)	adjust the (variable) resistor / resistance / number of cells / use battery of different voltage / use variable power source /	B1
3(b)(ii)	1.2(0) A and 1.65 A	B1
3(b)(iii)	3.3(3) ohms and 4.8(5) ohms both correct with unit (seen at least once)	B1
3(c)	brighter	B1
	hotter / bulb blows	B1

Question	Answer	Marks
4(a)	supply of ice	B1
	place thermometer in melting ice / ice and water	B1
4(b)	place thermometer in / above <u>boiling</u> water	B1
	beaker / test-tube / means of holding water	B1
4(c)	calibrate / graduate the thermometer	B1
	place thermometer in the room and read the temperature OR explain how the calibration was done	B1