PHYSICS **0625/53**

Paper 5 Practical **October/November 2019**

MARK SCHEME

Maximum Mark: 40

Published

This syllabus is regulated for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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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.

Question	Answer	Marks
1(a)	*V* all < 4.00 V and to 1dp at least	**1**
	I all < 1.00 A and to 2dp at least	**1**
1(b)	*R* values correct and increasing	**1**
1(c)	graph:	
	axes labelled correct orientation, with quantity and unit	**1**
	appropriate scales (plots occupying at least ½ grid)	**1**
	plots all correct to less than ½ small square and precise plots	**1**
	well-judged line <u>and</u> thin line	**1**
1(d)	<u>resistance</u> increases as <u>temperature</u> increases	**1**
	(*R increases with I*), brighter lamp = higher (filament) temperature	**1**
1(e)	variable resistor symbol correct (rectangle with strike-through arrow only)	**1**
	in series and rest of circuit correct	**1**

Question	Answer	Marks
2(a)(i)	v = 30.0 to 70.0(cm)	1
2(a)(ii)	f_1 correctly calculated	1
	2/3 sig fig and unit	1
2(a)(iii)	move screen slowly / backwards and forwards	1
2(b)(i)	h_I = 1.4 to 5.2(cm) <u>and</u> h_O = 1.0 to 2.0 (cm)	1
2(b)(ii)	correct calculation of M <u>and</u> no unit	1
2(b)(iii)	f_2 within 10% of f_1	1
2(c)	statement matching results	1
	values within limits of experimental accuracy / owtte	1
2(d)	any **one** from: • mark position of lens on holder ; • clamp rule / place rule on bench ; • ensure screen, lens <u>and</u> object all perpendicular (to bench) ; • view scale perpendicularly ; • mark top and bottom of image and measure later	1
2(e)	either method suggested if matching valid explanation e.g. METHOD 1: difficult to measure height of image in method 2 METHOD 1: smaller lengths measured in method 2 / reverse argument METHOD 2: can't measure u and v to lens accurately in method 1	1

Question	Answer	Marks
3(a)(i)	sensible value	**1**
3(a)(ii)	any **two** from: • rule close / parallel to spring ; • eye perpendicular to reading / use set square ; • clamp rule	**2**
3(b)	l values all increasing <u>and</u> larger than l_0	**1**
3(c)	correct calculations of e	**1**
3(d)	l_x present	**1**
	$2.0 \text{ N} < W_x < 3.0 \text{ N}$	**1**
3(e)(i)	statement matching results	**1**
	correct justification matching statement e.g. • L/e constant • e doubles when L doubles	**1**
3(e)(ii)	straight line	**1**
	(line) through origin	**1**

Question	Answer	Marks
4	**MP1 Apparatus** beaker <u>and</u> (material for) lid <u>and</u> thermometer <u>and</u> stopclock (or alternative)	**1**
	MP2 Method pour (hot) water into container measure temperature of (hot) water over period of time	**1**
	MP3 Method repeat for different thicknes<u>ses</u> of lid	**1**
	MP4 & MP5 Control variables any **two** from: • same <u>initial/starting</u> temperature of water ; • same volume of water ; • same size / material / thickness of beaker ; • same material for lid ; • same time for measuring temperature change / same temperature difference for measuring time taken ; • same room temperature / other environmental condition	**1**
	MP6 Table suitable column headings and <u>units</u>	**1**
	MP7 Analysis any **one** from: • comparison of temperature decrease / rates of cooling with <u>thickness</u> / different <u>lids</u> • draw a suitable graph with axes stated	**1**