CAMBRIDGE
International Education

Cambridge IGCSE™

PHYSICS **0625/61**

Paper 6 Alternative to Practical **May/June 2025**

MARK SCHEME

Maximum Mark: 40

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 May/June 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

© Cambridge University Press & Assessment 2025

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 descriptions 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.

© Cambridge University Press & Assessment 2025

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.

© Cambridge University Press & Assessment 2025

Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standard isation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	correct point or mark awarded
	incorrect point or mark not awarded
	information missing or insufficient for credit
	allow or accept
	arithmetic error
	incorrect or insufficient point ignored while marking the rest of the response
	contradiction in response, mark not awarded
	benefit of the doubt given
	error carried forward applied
	response has not answered question

© Cambridge University Press & Assessment 2025

Annotation	Meaning
RE	rounding error
SEEN or 	point has been noted, but no credit has been given or blank page seen
SF	error in number of significant figures
TE	transcription error
TV	response is too vague or there is insufficient detail in response
T	answer outside the tolerance of the mark scheme
	used to highlight parts of an extended response
	used to highlight parts of an extended response
MO	mandatory mark not awarded
SC	special case
	unclear response
PD	poor diagram
POT	power of ten error
XP	incorrect physics
U	incorrect unit

© Cambridge University Press & Assessment 2025

Acronyms and shorthand in the mark scheme

Acronym / shorthand	**Explanation**
Brackets ( )	Words not explicitly needed in an answer, however if a contradictory word / phrase / unit to that in the brackets is seen the mark is not awarded.
Underlining	The underlined word (or a synonym) must be present for the mark to be scored. If the word is a technical scientific term, the word must be there.
/ or **OR**	Alternative answers any one of which gains the credit for that mark.
owtte	Or words to that effect.
ignore	Indicates either an incorrect or irrelevant point which may be disregarded, i.e., not treated as contradictory.
insufficient	An answer not worthy of credit on its own.
CON	An incorrect point which contradicts any correct point and means the mark cannot be scored.
ecf [question part]	Indicates that a candidate using an erroneous value from the stated question part must be given credit here if the erroneous value is used correctly here.
cao	Correct answer only.
ORA	Or reverse argument.

© Cambridge University Press & Assessment 2025

Question	Answer	Marks
1(a)(i)	two measurements in cm 2.7 and 2.5, both given to nearest mm	**1**
1(a)(ii)	correct average: expect 2.6 (cm)	**1**
1(a)(iii)	any reasonable advantage for the method in the question given **OR** it is difficult to measure the diameter directly **OR** hard to find centre of ball	**1**
	a ruler for measuring the diameter directly would give rise to parallax errors	**1**
1(b)	V = 9.1(4)	**1**
	unit: cm^3	**1**
1(c)	correct **method** for calculation of m_B shown	**1**
	m_B = 11.6 (g)	**1**
1(d)	ρ on answer line correctly calculated to 2 or more significant figures	**1**
	unit: g / cm^3	**1**
	answer given to 2 or 3 significant figures	**1**

© Cambridge University Press & Assessment 2025

Question	Answer	Marks
2(a)	22 (°C) correctly shown	**1**
2(b)	cm^3, °C	**1**
2(c)	axes correctly labelled with quantity **AND** unit **AND** right way round	**1**
	suitable scales (occupying at least ½ the grid)	**1**
	plots correct to ± ½ small square **AND** precise plots	**1**
	good best-fit line judgement, thin, continuous line	**1**
2(d)(i)	so that temperature change is due to cold water added rather than heat losses to the surroundings	**1**
2(d)(ii)	to ensure even / constant temperature (throughout the liquid)	**1**
2(e)	any **two** from: • some form of insulation • add a lid • shield from draughts • white / shiny surface	**2**
2(f)	measuring cylinder	**1**

© Cambridge University Press & Assessment 2025

Question	Answer	Marks
3(a)	normal neat and at 90°	1
	incident ray in correct quadrant at 40° ± 2°	1
3(b)	P_1 P_2 separation at least 5.0 cm	1
3(c)(i)	incident ray and reflected ray and normal meeting at B within 2 mm	1
3(c)(ii)	α = 48° ± 2°	1
3(d)	new reflected ray drawn above MR in an appropriate quadrant	1
	angle of reflection drawn 50° ± 2°	1
3(e)	statement to match results	1
	justification to include idea of results being equal within the limits of experimental error **OR** unequal if beyond the limits of experimental error	1
3(f)	any **two** from: • thin pins • thin lines / sharp pencil • view bases of pins / pins vertical • pins far apart / at least 5 cm	2

© Cambridge University Press & Assessment 2025

Question	Answer	Marks
4	**MP1** **circuit used:** correct circuit diagram	1
	MP2 **measurements made:** measure wire diameter **AND** measure voltage and current **OR** record voltmeter and ammeter readings	1
	MP3 **analysis of readings:** calculate / work out resistance of wire	1
	MP4 **performing the investigation:** repeat for at least two other diameters of wire	1
	MP5 **variable kept constant:** length / material of wire	1
	MP6 **table:** with columns for diameter of wire, voltage, current and resistance each column must be labelled with both quantity and unit	1
	MP7 **conclusion:** plot a graph of resistance against diameter **OR** an answer which suggests comparing values of diameter **AND** resistance in table	1

© Cambridge University Press & Assessment 2025