CAMBRIDGE
International Education

Cambridge IGCSE™

PHYSICAL EDUCATION **0413/13**

Paper 1 Theory **October/November 2025**

MARK SCHEME

Maximum Mark: 100

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

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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.

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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.

Science-Specific Marking Principles

1	Examiners should consider the context and scientific use of any keywords when awarding marks. Although keywords may be present, marks should not be awarded if the keywords are used incorrectly.
2	The examiner should not choose between contradictory statements given in the same question part, and credit should not be awarded for any correct statement that is contradicted within the same question part. Wrong science that is irrelevant to the question should be ignored.
3	Although spellings do not have to be correct, spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. ethane / ethene, glucagon / glycogen, refraction / reflection).
4	The error carried forward (ecf) principle should be applied, where appropriate. If an incorrect answer is subsequently used in a scientifically correct way, the candidate should be awarded these subsequent marking points. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.
5	<u>'List rule' guidance</u> For questions that require ***n*** responses (e.g. State **two** reasons …): • The response should be read as continuous prose, even when numbered answer spaces are provided. • Any response marked *ignore* in the mark scheme should not count towards ***n***. • Incorrect responses should not be awarded credit but will still count towards ***n***. • Read the entire response to check for any responses that contradict those that would otherwise be credited. Credit should **not** be awarded for any responses that are contradicted within the rest of the response. Where two responses contradict one another, this should be treated as a single incorrect response. • Non-contradictory responses after the first ***n*** responses may be ignored even if they include incorrect science.

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6 Calculation specific guidance

Correct answers to calculations should be given full credit even if there is no working or incorrect working, **unless** the question states 'show your working'.

For questions in which the number of significant figures required is not stated, credit should be awarded for correct answers when rounded by the examiner to the number of significant figures given in the mark scheme. This may not apply to measured values.

For answers given in standard form (e.g. $a \times 10^n$) in which the convention of restricting the value of the coefficient (a) to a value between 1 and 10 is not followed, credit may still be awarded if the answer can be converted to the answer given in the mark scheme.

Unless a separate mark is given for a unit, a missing or incorrect unit will normally mean that the final calculation mark is not awarded. Exceptions to this general principle will be noted in the mark scheme.

7 Guidance for chemical equations

Multiples / fractions of coefficients used in chemical equations are acceptable unless stated otherwise in the mark scheme.

State symbols given in an equation should be ignored unless asked for in the question or stated otherwise in the mark scheme.

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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
BOD	benefit of the doubt given
ECF	error carried forward applied
SEEN	point has been noted, but no credit has been given or blank page seen
TV	response is too vague or there is insufficient detail in response
	incomplete answer
	linked consideration of points
	linked consideration of points

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Annotation	Meaning
REP	repetition in response
^	information missing or insufficient for credit
CON	contradiction in response, mark not awarded

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Question	Answer	Marks
1(a)	1 mark for: Excess Post-exercise Oxygen Consumption;	**1**
1(b)	1 mark for: oxygen debt; Accept other appropriate recognised terms.	**1**

Question	Answer	Marks
2	4 marks for: essential human needs are met; friendship and support; having value within society; ability to mix with other people; Accept alternative wording.	**4**

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Question	Answer	Marks
3(a)	1 mark for each structure identified. 1 mark for each description of function. Functions must be different. (A) ribs; protect the lungs or heart / move upwards and outwards to allow inspiration / move downwards and inwards to allow expiration / provide attachment point for muscles; (B) alveoli; allow gaseous exchange to occur; (C) diaphragm; contracts / flattens to allow inspiration **OR** relaxes / domes up to allow expiration; Accept other appropriate descriptions of function.	**6**
3(b)	3 marks from: (alveoli are) surrounded by capillaries / have a good blood supply; (alveoli walls are) one cell thick; (the walls of the alveoli) contain elastic fibres; (walls of the alveoli are) moist / lined with a film of water; large surface area / high number (of alveoli); Accept descriptions of other appropriate characteristics.	**3**

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Question	Answer	Marks
4(a)(i)	1 mark for: third class;	**1**
4(a)(ii)	1 mark for labelling appropriate component in the middle with full name. 1 further mark for all three components correctly labelled with full names. for example, if identifying a third-class lever in (a)(i): effort in the middle; fulcrum–effort–resistance **OR** resistance–effort–fulcrum;	**2**
4(b)	1 mark for naming each force. 1 mark for each description. Must name force for description mark. gravity; the javelin moves downwards / towards the ground; air resistance; the air resistance will slow the javelin down / will act in the opposite direction to the javelin's flight; force applied at release / muscular force; (push or pull on the javelin) launches it into the air / (the greater the force applied) the javelin will travel further / (more force applied) increases acceleration / speed of the javelin; Accept other appropriate forces and relevant descriptions.	**6**

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Question	Answer	Marks
4(c)	3 marks from: (use of lasers) to accurately measure throws; (use of cameras) to aid decision-making by officials, e.g. to identify foul throws / foot fault / flat landing; artificial run-up surface / spiked shoes increase grip so thrower can stop before the throwing line; javelin shoes / back support / taping to reduce chance of injury; shape / material of javelin has altered the distance that can be thrown; (use of remote-control devices) to return javelin after landing; (use of software) to improve technique / performance; (use of clothing / footwear) so technique / performance is maximised; (use of media) big screens in stadium to enhance audience experience; Accept other appropriate examples.	**3**

Question	Answer	Marks
5(a)	1 mark for each named stage (3 marks max.). 1 mark for each appropriate description (3 marks max.). Must name stage for description mark. input; batter sees the ball coming towards them / batter sees the position of the fielders; output; batter swings the bat (to hit the ball) / hits the ball; feedback; if a good hit was made, the batter will repeat the same movement next time / if the ball was missed, the batter will change their action next time; Accept other appropriate descriptions.	**6**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>5(b)</td><td>1 mark for each appropriate difference.

3 from:
<table>
<tr><th>short-term memory</th><th></th><th>long-term memory</th></tr>
<tr><td>stores information for a short period of time</td><td>AND</td><td>can store information for a long period of time;</td></tr>
<tr><td>can only store small amounts of information / has a limited capacity</td><td>AND</td><td>can store large amounts of information / capacity is limitless;</td></tr>
<tr><td>information can be forgotten (if not practised)</td><td>AND</td><td>information is retained (without practise);</td></tr>
<tr><td>receives all new information</td><td>AND</td><td>information cannot go directly into LTM;</td></tr>
<tr><td>runs skills / motor programmes</td><td>AND</td><td>stores skills / motor programmes;</td></tr>
</table></td><td>3</td></tr>
<tr><td>5(c)</td><td>1 mark for each type of guidance identified (2 marks max.)
1 mark for each description of an example (2 marks max.) Must identify type of guidance for description mark.

visual;
coach may show a video of the batting technique / coach may demonstrate the batting technique;

verbal;
coach may tell the batter that they are holding the bat incorrectly / coach may give instructions to the batter about where to hit the ball;

manual;
coach may hold the batter’s arms and move them through the correct swing / coach may adjust the position of the batter’s hands on the bat;

mechanical;
coach may use a pitching / bowling machine to ensure ball is received by batter at same speed / same height every time;

Accept other appropriate examples.</td><td>4</td></tr>
</table>

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Question	Answer	Marks
6(a)	1 mark for each description. (real risk) objective amount of danger / the danger that actually exists in the activity / the level of actual risk; (perceived risk) an individual's subjective / personal judgement / fear of the dangers of an activity; Accept alternative wording.	**2**
6(b)(i)	1 mark for each example. for example: (real risk) falling off the board / drowning / being hit on the head with the boom / falling and hitting body onto board / back injuries when pulling sail up from the water / being swept out to sea / collisions with other craft / sunburn / hypothermia / dehydration; (perceived risk) fear of falling off the board / worry about drowning / fear of injury; Accept other appropriate examples.	**2**
6(b)(ii)	1 mark for each suggestion. Suggestions must be different, for example: (protective equipment) wear helmet to protect head / wear harness to stay connected to board; (appropriate footwear) wear windsurfing boots to maintain grip on the board / wear footwear that does not fill with water and weigh you down; (appropriate clothing) wear wetsuit to keep warm / wear buoyancy aid to stay afloat when fall into water / wear gloves to keep hands warm / maintain grip; Accept other appropriate examples.	**3**

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Question	Answer	Marks
7(a)	1 mark for each named component (3 marks max.) 1 mark for each description of benefit to gymnast (3 marks max.) Must name component for description mark. agility; able to change direction quickly so can perform a series of tumbling movements; cardiovascular endurance / stamina; able to perform a floor routine continuously without getting tired; coordination; able to perform gymnastic movements using both the arms and the legs at the same time; flexibility; able to move the hip joints over a wide range so can perform the splits; muscular endurance; able to use the muscles of the legs repeatedly when performing a series of jumps; power; able to jump high enough to perform a somersault; reaction time; able to adjust body position quickly when mistiming a somersault so reduces risk of injury; speed; able to run quickly at the start of a tumbling sequence so momentum continues through the movements; strength; able to support body in balances, e.g. holding a handstand; Accept other appropriate benefits.	**6**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>7(b)</td><td>1 mark for each part of the description (3 marks max).

subject stands on one leg (on toes);
raises other foot to place it on the inside of the standing leg / subject stands with hands on hips;
timer stops when the standing foot moves / standing foot heel touches the floor / non-standing foot loses contact with knee / a hand comes off the hip;
some variants have eyes closed (e.g. Blind Standing Stork Test);
(the best time from 3 attempts is) compared to normative data tables;</td><td>3</td></tr>
<tr><td>7(c)</td><td>6 marks for:

1 mark for each correct cell, for example:

<table>
<tr><td>measurable;</td><td>(timing the number of seconds a handstand can be held)</td></tr>
<tr><td>(agreed)</td><td>discussing the goal with the coach;</td></tr>
<tr><td>realistic;</td><td>(make sure the gymnast is strong enough to perform a handstand)</td></tr>
<tr><td>(time-phased)</td><td>to achieve the goal within 6 months;</td></tr>
<tr><td>exciting;</td><td>(the gymnast is thrilled that the performance of their handstand is improving)</td></tr>
<tr><td>(recorded)</td><td>the goal is written down to be referred back to;</td></tr>
</table>
</td><td>6</td></tr>
</table>

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Question	Answer	Marks
8(a)	4 marks for: (left ventricle) receives (oxygenated) blood from the left atrium **OR** pumps (oxygenated) blood to the body / the aorta; (right atrium) receives (deoxygenated) blood from the body / the vena cava **OR** pumps (deoxygenated) blood to the right ventricle; (pulmonary artery) carries (deoxygenated) blood from the right ventricle / heart to the lungs; (valve) prevents back flow of blood / controls the direction of blood flow through the heart;	**4**
8(b)	1 mark for: allow oxygen to diffuse from the lungs to the blood / allow carbon dioxide to diffuse from the blood into the lungs;	**1**
8(c)(i)	1 mark for: the volume of blood pumped out of the left ventricle per beat / the volume of blood pumped out of the heart per beat;	**1**
8(c)(ii)	1 mark for working. 1 mark for numerical answer. 1 mark for appropriate unit given the numerical answer. (working) 72 × 75; (numerical answer) 5400 / 5.4; (units) millilitres per minute / litres per minute;	**3**

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Question	Answer	Marks
9(a)	1 mark for each named type of motivation (2 marks max.) 1 mark for each description (2 marks max.) 1 mark for each appropriate example (2 marks max.) Must name type of motivation for description or example mark. intrinsic; motivation that comes from within the performer; for example, a tennis player practises serving for their own satisfaction / to improve performance / enjoyment / personal challenge; extrinsic; motivation that comes from outside the performer / from external influences; for example, a runner competes to win a medal / prize money / trophies / certificates / badges / praise from coach; Accept other appropriate examples.	**6**
9(b)	1 mark from: to work harder / to improve performance / to improve fitness / to learn new skills / able to dominate opponent / to increase chances of winning / to win rewards / to receive praise; Accept other appropriate suggestions.	**1**

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Question	Answer	Marks
10	4 marks for: (advances in technology) introduction of gadgets that reduce the time spent on household chores means that more leisure time is available / people are less tired after doing chores so can use their time / energy doing leisure activities so more activities are needed; (better health awareness) people are better educated about the health benefits of doing physical activity, so want to do more activities so more activities are needed; (improvements in travel methods) access to leisure activities is easier due to better public transport / more car ownership / so people can travel bigger distances to access physical activities so more activities are needed; (wider media coverage) people are more aware of leisure opportunities through the internet / social media / advertising so more people want to participate so more activities are needed; Accept other appropriate explanations.	**4**

Question	Answer	Marks
11(a)	2 marks for: (A) tricep(s); (B) bicep(s);	**2**
11(b)	1 mark for: flexion;	**1**
11(c)	2 marks for: biceps / muscle B **AND** agonist / prime mover **AND** contract / shorten / to pull forearm up; triceps / muscle A **AND** antagonist **AND** relax / lengthen / to allow forearm to move up;	**2**

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Question	Answer	Marks
11(d)	1 mark for: eccentric;	1

Question	Answer	Marks
12	4 marks from: continuous / **AND** / fartlek usually steady pace / **AND** / changes of pace; usually flat terrain / **AND** / changes of terrain (uphill / downhill); intensity decided using heart rate / **AND** / intensity decided using Borg scale; only develops cardiovascular endurance / **AND** / develops cardiovascular endurance and anaerobic fitness; usually low intensity / **AND** / mixture of low and high intensity; Accept other appropriate comparisons.	4

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Question	Answer	Marks
13	1 mark for each explanation. 2 marks from: (age and maturity) some activities have age restrictions preventing young performers from participating so skill levels will be low / the earlier someone starts playing a sport the more opportunity they have to learn a skill so skill levels may be higher compared to others of a similar age / older performers may have more experience of when to apply skills for the best result so have a higher skill level / young children have not developed coordination or balance needed so skill level is low / elderly people's coordination may decrease so skill level is lower; (culture) certain sports have greater exposure / opportunities in certain countries so have a higher profile which leads to higher skill level / some countries excel in certain sports so greater opportunities to play that sport leading to higher skill level / the culture within families to play certain sports often means children are influenced to play, leading to a higher skill level / some sports are traditional due to climate and geography so people expect to take part, e.g. cross-country skiing in Norway so skill levels are higher / some women's participation may be restricted so their skill level may be lower; (motivation) if the performer lacks motivation, they will not work hard in training to improve skills so skill levels are low / a performer with low motivation will not have focus or will give up easily if a skill proves to be difficult to learn so skill levels are low / a motivated performer will be prepared to sacrifice things to work hard to improve so skill levels will be high; (anxiety) some performers are naturally more anxious than others so skill levels may be lower / may be concerned that they may not be able to play well so skill levels may be lower / concerned when they are being watched so skill levels may be lower; (arousal conditions) underarousal / overarousal results in a lack of focus, which results in low skill levels / optimal arousal leads to being focused and results in high skill levels / a performer who prefers low arousal activities may perform fine motor skills at a higher level / a performer who prefers high arousal activities may perform gross motor skills at a higher level; (facilities) the ease of access to facilities may enable a performer to train more often so improving skill level / some facilities may be difficult to attend regularly so skill level may be lower / access to better facilities enables performers to use the latest technology and improve skill level;	**2**

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Question	Answer	Marks
13	(environment) living close to areas that enable access to natural features allows skills to be developed more easily, e.g. mountainous areas enable easier access to skiing facilities; (teaching and coaching) the higher the quality of coaching / teaching available and more practice / training the higher the skill level; Accept other appropriate factors and explanations.	

Question	Answer	Marks
14	1 mark for each named phase (3 marks max.) 1 mark for each explanation (3 marks max.) Must name phase for explanation mark. pulse raiser; (explanation) blood flow to muscles increases and the performer is prepared for immediate activity / raises body temperature; stretches; (explanation) loosens the joints to aid movement when performing / reduces the risk of injury; familiarisation / skill-related activities; (explanation) allow performers to get used to the environment and practise a key skill;	**6**

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