

Cambridge International AS Level

SPORT & PHYSICAL EDUCATION**8386/12**

Paper 1 Theory

October/November 2025**MARK SCHEME**Maximum Mark: 70

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.

This document consists of **12** 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 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.

PUBLISHED**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 'List rule' guidance
 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.

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.

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 standardisation 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
	contradiction in response, mark not awarded
	benefit of the doubt given
	error carried forward applied
	point has been noted, but no credit has been given or blank page seen
	response is too vague or there is insufficient detail in response
	linked consideration of points

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Annotation	Meaning
	linked consideration of points
	repetition in response

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Question	Answer	Marks
1(a)	4 marks for any 4 of: - heart rate increases (as exercise intensity increases); - heart rate is directly proportional to exercise intensity; - stroke volume increases (during sub-maximal exercise); - at lower intensity, stroke volume increases proportionally to exercise intensity; - stroke volume plateaus / does not increase during high intensity exercise;	4
1(b)	3 marks for any 3 of: - stroke volume increases because venous return increases OR SV increases as a greater volume of blood returns to the heart OR SV increases due to increased end-diastolic volume; - there is a greater stretch of the ventricle walls; (increased stretch) causes a greater force of contraction; ... this is known as Starling's law; - stroke volume plateaus because (at higher intensities) there is not enough time for ventricles to fill with blood OR stroke volume plateaus because end-diastolic volume of ventricles is lower;	3

Question	Answer	Marks
2(a)(i)	(extension at the hips) gluteus maximus; (plantar flexion at the ankles) gastrocnemius;	2
2(a)(ii)	femur AND pelvis;	1
2(b)(i)	there is no change in length (of muscle);	1
2(b)(ii)	- the mass of the performer; - the height of the centre of mass of the performer; - the area / size of the base of support; - the position of the centre of mass above the base of support OR the relation of the line of gravity to the base of support;	4

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Question	Answer	Marks
3	5 marks for any 5 of: 1 information / stimuli enter the short-term sensory store; 2 information is stored for up to a second; 3 information is filtered OR selective attention takes place; 4 (relevant) information enters the short-term memory / working memory; 5 a limited amount of information is stored OR 5–9 items OR for about 30 seconds; 6 rehearsed / practised information is passed into the long-term memory; 7 long-term memory has a limitless capacity; 8 information is stored if important / meaningful / unique; 9 information is stored as motor programmes; 10 information is retrieved from long-term memory and sent to short-term memory; 11 short-term memory runs the motor programme for the skill; 12 memory process affects perception OR helps to judge what needs to be done;	5

Question	Answer	Marks
4(a)	4 marks for any 4 of: 1 has complex rules; 2 is highly structured; 3 has predetermined boundaries; 4 has predetermined numbers; 5 has predetermined time constraints; 6 has predetermined equipment / kit; 7 has predetermined roles; 8 has officials; 9 has tactics / strategies;	4
4(b)	1 (distance) 600 (metres); 2 (displacement) 0 (metres);	2

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Question	Answer	Marks
4(c)	1 (clubs) provide high-quality swimming coaches OR have high-quality swimming facilities OR offer the chance to compete in high-level competitions OR nominate swimmers for regional / national squads OR offer science support for swimming; 2 (scholarships) gives financial support to allow access to high-quality provision for swimming (at a school / college / university); Accept other suitable explanations of these pathways to excellence.	2
4(d)	6 marks for 6 of: advantages (sub-max. 4 marks) 1 gives a clear demonstration / image of the swimming skill / stroke OR it shows you how to perform the swimming stroke; 2 can provide many different angles to see / learn different aspects of the swimming skill; 3 can be combined with verbal guidance / verbal cues to highlight key points of the swimming skill; 4 can be repeated so that the swimmer remembers / learns the swimming technique; 5 can motivate / give confidence; 6 can be provided in different formats (e.g. video / poster / live demonstration); 7 may provide personal safety / life-saving skills; disadvantages (sub-max. 4 marks) 8 too complex to be taken in by the observer; 9 demonstrations depend on the coach's / peer's ability to perform the swimming skill correctly; 10 if visual guidance is incorrect it can lead to learning incorrect technique; 11 observer may not be able to clearly see the key elements of the demonstration as parts of the body are under water; 12 it may be dependent on the availability of expensive video equipment; 13 it can lead to information overload; 14 does not give kinaesthesia of the stroke; 15 it can be time consuming; Accept other suitable suggestions.	6

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Question	Answer				Marks
5(a)	performer's left knee from A to C	1 extension;	2 rectus femoris;	3 biceps femoris;	9
	performer's right elbow from B to C	4 extension;	5 triceps brachii;	6 biceps brachii;	
	performer's right shoulder from B to C	7 flexion OR horizontal flexion;	8 anterior deltoid OR pectoralis major;	9 posterior deltoid OR latissimus dorsi;	
5(b)	5 marks for any 5 of: 1 for every action (force) there is an equal and opposite reaction (force); 2 shot putter / arm / hand applies a (muscular / action) force to the shot; 3 shot applies a (reaction) force to the shot putter / arm / hand; 4 which is equal AND opposite (to the action force from the shot putter's hand); 5 shot putter applies a (muscular / action) force to the ground / shot put circle; 6 ground / circle applies a (reaction) force to the shot putter; 7 which is equal AND opposite (to the action force from the shot putter);				5
5(c)	1 the greater the height of release the greater the horizontal displacement OR the taller the shot putter, the greater the horizontal displacement; 2 ... because the shot has more time in flight / before it falls to the ground; 3 optimal angle of release is less than 45 degrees (for greatest horizontal displacement); 4 ... because height of release is above landing height (for shot put) OR positive relative release height; Accept other relevant explanations. Accept reverse arguments.				4

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Question	Answer	Marks
5(d)(i)	2 marks for any 2 of: (pacing continuum) considers the degree of control over the start / timing of the skill; (pacing continuum) considers the degree of control over the rate of the skill; - internally paced skills tend to be closed skills OR externally paced skills tend to be open skills; - externally paced skills are reactive OR internally paced skills are proactive;	2
5(d)(ii)	(gross) use of large muscles of (one of) arms / legs / trunk; (discrete) clear beginning and end AND, e.g. shot putter must start and finish within the circle;	2
5(e)	6 marks for any 6 of: - testing (of blood / urine); - random / out-of-season (testing); - storing and re-testing of samples (using new technology at a later date); - strict punishments / bans / fines; - increase funding for testing OR increase funding to World Anti-Doping Agency; - closer monitoring of national anti-doping agencies; - biological passport; - impose 'whereabouts' rule; - education / campaigns about the dangers of PEDs; - make sure updated / correct lists of banned substances are available to all athletes; - use of positive role models; - name and shame drug cheats; - support of national governing bodies / National Olympic Committees; - encourage whistleblowing; - be aware of alternative legal medications / supplements; - liaise with doctors to get therapeutic use exemption (TUE) (if needed); Accept other relevant strategies.	6

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Question	Answer	Marks
6(a)(i)	520 (millilitres);	1
6(a)(ii)	500 (millilitres);	1
6(b)	1 breathing rate is measured / determined OR count / determine the number of breaths per minute; 2 tidal volume $\times$ breathing rate = minute ventilation OR minute ventilation is the product of breathing rate and tidal volume;	2

Question	Answer	Marks
7(a)	1 (knowledge of) initial conditions; 2 (knowledge of) response specifications;	2
7(b)	1 sensory consequences; 2 response outcomes;	2