

Cambridge International AS Level

SPORT & PHYSICAL EDUCATION**8386/13**

Paper 1 Theory

May/June 2026**MARK SCHEME**Maximum Mark: 70

Published

This mark scheme contains the instructions and marking guidance that our examiners used to mark candidate responses for this component.

Before they start marking, examiners complete a standardisation process. They review a range of candidate responses and discuss the mark scheme in detail to agree which answers can and cannot be accepted. Examiners award marks where it is clear that candidate responses have met the requirements of the mark scheme. These requirements may vary between different components or different versions of the same component, depending on the exact requirements of the question and the candidate responses seen during the standardisation process.

Sometimes, our mark schemes may allow marks to be awarded to responses which contain elements that are factually incorrect or for content not covered by the syllabus. We do this in response to the demands of a specific question to support candidates and make sure that our assessments are fair. However, these allowances should not be used as a guide for teaching and learning.

We cannot discuss the mark scheme with schools, and we recommend that schools read the mark scheme together with the assessment material and the Principal Examiner Report for Teachers.

This document consists of **15** printed pages.

General marking principles

All examiners must apply these marking principles when marking candidate responses.

1	Examiners must award marks for each response in line with: - the specific content defined in the mark scheme - the specific skills defined in the mark scheme or in the level descriptions - the standard of response required as exemplified by the standardisation scripts.
2	Examiners must award whole marks (not half marks, or other fractions).
3	Examiners must award marks positively . This means that: - marks are not deducted for errors or omissions - marks are awarded for correct/valid answers as defined in the mark scheme and also for other valid answers which go beyond the scope of the syllabus and mark scheme referring to your team leader as appropriate - the quality of spelling, punctuation and grammar are judged only when the mark scheme indicates that these features are specifically assessed in the question. However, the meaning of all responses must be unambiguous.
4	Examiners must consistently apply the requirements of the mark scheme and any rules for what to do when candidates have not followed instructions correctly.
5	Examiners must use the full range of marks defined in the mark scheme, unless limited by the quality of the candidate responses seen.
6	Examiners must award marks according to the mark scheme and must not award marks with grade thresholds or grade descriptions 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 <i>n</i> responses (e.g. State two reasons ...): • The response should be read as continuous prose, even when numbered answer spaces are provided. • Any response marked <i>ignore</i> in the mark scheme should not count towards <i>n</i>. • Incorrect responses should not be awarded credit but will still count towards <i>n</i>. • 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 <i>n</i> 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

Annotation	Meaning
	linked consideration of points
REP	repetition in response

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Question	Answer	Marks	Guidance
1(a)	(left elbow) 1 (articulating bones) humerus AND radius AND ulna; 2 (type of movement) extension; 3 (main agonist) triceps brachii; (right knee) 4 (articulating bones) femur AND tibia; 5 (type of movement) extension; 6 (main agonist) rectus femoris;	6	Ignore patella. Do not accept: ambiguous spellings. Accept: flexion to extension for 2 and 5. Accept: vastus medialis / vastus intermedius / vastus lateralis for 6.
1(b)	3 marks for any 3 of: 1 specific practice OR practise reacting to a ball OR groove / overlearn the response / skill OR strengthen the stimulus–response bond; 2 (use) mental rehearsal / imagery / visualisation; 3 selective attention OR focus on the action OR concentrate on preliminary movements OR early cue identification; 4 anticipation of stimulus; 5 warm up; 6 increase arousal / motivation OR have the correct arousal level; 7 improve fitness OR improve a named component of fitness; Accept other appropriate strategies.	3	Practice alone = TV. Control anxiety = TV.

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Question	Answer	Marks	Guidance
1(c)	5 marks for any 5 of: 1 motor programmes for goalkeeping skills are seen as a generalised series of movements; 2 goalkeeping skills are modified / adapted OR linked with previously learned skills; 3 skill development is based on collecting information from recall schema AND recognition schema; 4 make sure that generalised movements are developed (at a young age); 5 (examples of fundamental motor skills) catching / kicking; 6 varied practice conditions should be used OR practise saving shots from different angles / at different speeds; 7 use distributed practice OR include breaks in training; 8 make practice conditions relevant to the game OR make practice realistic to the game; 9 use challenging / progressive tasks; 10 use slow-motion training / video / demonstrations / visual guidance; 11 use / give (plenty of) feedback; 12 use transfer of learning; The response must be applied to goalkeeping skills for credit.	5	Use of part / whole practice = TV. Use of recall AND recognition schema alone = BOD 3. Avoid massed practice = BOD 7. Use of kinaesthesia = BOD 11. An explanation of recognition schema / sensory consequences or response outcomes = BOD 11.

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Question	Answer	Marks	Guidance
1(d)	1 (weight) pulls the ball downwards OR acts downwards / towards the ground; 2 (air resistance) opposes the motion of the ball OR slows the ball down; 3 (action/muscular force) causes acceleration of the ball OR causes the ball to move OR acts forwards; 4 (friction) acts in the opposite direction to the direction the ball is travelling OR opposes motion of the ball OR slows the ball down; Accept other suitable descriptions.	4	(Air resistance) acts against the ball = BOD 2. (Action/muscular force) gives the ball momentum = BOD 3. (Friction) acts against the ball = BOD 4.
1(e)	4 marks for any 4 of: (Newton's first law) 1 the ball remains stationary until an external force is applied OR the ball remains stationary until the foot strikes the ball; 2 the ball will not have constant velocity because external forces act on it OR the ball's velocity will change because an external force acts on it; (Newton's third law) 3 the foot applies an action force to the ball; 4 ball applies a reaction force to the foot; 5 ... which is equal AND opposite to the action force;	4	Do not accept: ball will have constant motion. Foot kicks ball alone = TV. Goalkeeper's kick applies a force to the ball = BOD 3.

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Question	Answer	Marks	Guidance
1(f)	1 height of release; 2 speed of release; 3 angle of release; Accept other appropriate factors.	3	Speed / muscular force alone = TV. How high it is kicked = TV. Weather / environment on its own = TV. Magnitude of force applied to ball / how hard it is kicked = BOD 2. Accept: Gravity / weight / mass of ball. Air pressure / altitude. Friction / air resistance / drag / wind speed / wind direction. Spin.
1(g)	1 boundaries / pitch size / pitch markings; 2 numbers (of players); 3 time constraints; 4 equipment; 5 roles; Accept other appropriate suggestions.	5	Accept examples of each aspect. Accept: Tactics / strategies. (Complex) rules. Competitions / leagues / governing bodies. Officials / referees / assistant referees. Umpires / judges = TV.

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Question	Answer	Marks	Guidance
1(h)	5 marks for any 5 of: 1 (economic status) cheap to play OR minimal equipment needed; 2 (economic status) there are many opportunities to earn money; 3 (sociocultural influences) many cultures / countries allow / encourage participation; 4 (sociocultural influences) part of most physical-education programmes in schools OR positive experience / enjoyment of football at school; 5 (family) many parents are involved / encourage children to participate; 6 (peers) peer pressure encourages participation OR if your friends play you are likely to join in; 7 (peers) being seen to be skilful gives people status / is seen to be cool; 8 (facilities) many pitches / clubs / leagues are widely available for most people; 9 (age) accessible for all ages, for example junior leagues / walking football enable lifelong participation; 10 (gender) males AND females can access association football; 11 (disability) adapted versions are available for many disabilities; 12 role models are widely seen; 13 media coverage encourages participation; 14 health benefits of participation are promoted; 15 easy to set up / organise / only basic skill level needed to join in; 16 high levels of investment (in grass-roots football); Accept other appropriate explanations.	5	It can be played anywhere / many clubs / leagues / competitions = BOD 8. Any specific physical / social / mental health benefit explained = 14.

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Question	Answer	Marks	Guidance
2(a)	4 marks for 4 of: (footwear, sub-max. 2 marks) 1 lightweight materials; 2 better shock absorption / cushioning technology; 3 improved grip / friction; 4 waterproof fabric / breathable materials; 5 carbon plates / improved energy return; 6 biometric data monitoring; 7 personalised shoe / insole design; (clothing, sub-max. 2 marks) 8 breathable fabric / wicking technology; 9 improved thermoregulation; 10 seamless technology; 11 compression wear; 12 smart-thread technology / biometric data monitoring; Accept other appropriate descriptions. Descriptions must be different for additional credit.	4	Credit breathable / biometric data monitoring in either context but only once. Lightweight clothing / skin-tight clothing = TV. Lightweight footwear alone = BOD 1. Better force distribution = BOD 7.
2(b)	5 marks for any 5 of: 1 growth in media interest; 2 growth in public interest; 3 growth in spectatorism; 4 growth in professionalism; 5 growth in advertising; 6 growth in sponsorship; Accept other appropriate suggestions.	5	Reach more people / people know more = TV unless linked to media/advertising. Increase in popularity / participation / raise awareness / more competitions = BOD 2. More income for successful runners = BOD 4. More business involvement = 6. Accept: Change the product / change the format. More merchandising. Increase in role models.

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Question	Answer	Marks	Guidance
2(c)	Suggestions must be different for credit. (reduce weight) lower energy expenditure OR reduced risk of injury OR reduced stress on joints; (reduce the effects of fatigue) to maintain running speed OR quicker recovery rate OR higher intensity of training; (mask pain) runner can stay in the race OR continue running / training when injured; Accept other suitable suggestions.	3	Prevent injury = TV. Run long distances = TV. Increased efficiency / run faster / easier to run / increase endurance = BOD 1. Increase endurance / run for longer / run faster = BOD 2.
2(d)	4 marks for 4 of: (intrinsic, sub-max. 2 marks) - enjoyment / excitement; - love of the sport; - pride / satisfaction / confidence; - personal challenge / beat a personal best; - desire to win; (extrinsic, sub-max. 2 marks) - trophy / medal / certificate / badge / prize; - money; - praise / approval (from coach / peers); - cheering crowd; - publicity / fame / social status / glory; Accept other suitable examples.	4	DNA: tangible or intangible for extrinsic unless supported by relevant examples. Rewards = TV. Goal setting = TV. Desire to improve = BOD 4. Examples of prizes = 6.
2(e)	(tidal volume) decreases; (minute ventilation) decreases; (inspiratory reserve volume) increases; (expiratory reserve volume) increases;	4	Accept equivalent synonyms. Accept suitable numbers that show a decrease / increase as relevant. Accept remains elevated and then decreases for 1 and 2. Accept remains reduced and then increases for 3 and 4.

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Question	Answer	Marks	Guidance
3(a)	68;	1	
3(b)	1 (working) $(57.8 + 58.6 + 58.3 + 60.6) \div 4$ OR 235.3 2 (answer) 58.8;	2	Do not accept: 58.82 OR 58.825.
3(c)	1 (working) mass $\times$ velocity OR 0.058×58.3 ; 2 (answer) 3.4; 3 (units) kilogram(s) metres per second;	3	Do not accept: (units) kg / m per sec. Accept: (units) kg m / s or kg m s ⁻¹ or other correct units.

Question	Answer	Marks	Guidance
4	1 (rest) horizontal line on graph from 0 to 2 seconds; 2 (positive acceleration) curve with gradient increasing from 2 to 4 seconds; 3 (negative acceleration) curve with gradient decreasing from 4 to 6 seconds;	3	Accept: line starting at coordinate 2,0 = 1. Accept: horizontal lines at any distance value from 0 to 2 seconds = 1. Do not accept: graphs showing decreasing distance.

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Question	Answer	Marks	Guidance
5	1 mark for: 1 (autonomic nervous system) determines the firing rate of sinoatrial node OR consists of the sympathetic AND parasympathetic systems OR stimulates the sinoatrial node; and 3 marks for any 3 of: 2 cardiac control centre receives information from receptors; 3 role of one named receptor, e.g. chemoreceptors detect increase in acidity; (sympathetic nervous system) 4 accelerator / cardiac nerve; 5 ... release of noradrenaline; 6 ... increases heart rate; (parasympathetic nervous system) 7 ... allows heart rate to increase OR decreases heart rate; 8 ... via the vagus nerve; 9 ... role of acetylcholine;	4	Ignore adrenaline. Accept: release of (nor)epinephrine for 5.

Question	Answer	Marks	Guidance
6	1 (positive) a (learned) skill enhances the learning of another skill OR (the learning of) one skill enhances the learning of another skill; 2 (bilateral) a (learned) skill is transferred from one side of the body to the other side of the body; Accept suitable alternative descriptions.	2	Learning a skill has a positive effect on learning another skill = TV. Do not accept: transfer from sport to sport (must be skill) for 1 and 2. Learning is transferred from limb to limb = BOD 2.