



Cambridge International AS Level

SPORT & PHYSICAL EDUCATION

8386/01

Paper 1 Theory

For examination from 2024

MARK SCHEME

Maximum Mark: 70

Specimen

This document has **12** pages. Any blank pages are indicated.

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 descriptions for the question
- the specific skills defined in the mark scheme or in the generic level descriptions 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 descriptions.

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 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 '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.

Question	Answer	Marks																											
1(a)(i)	<p>2 marks for any 2 of:</p> <ol style="list-style-type: none"> 1 provide the values of fair play / sportsmanship; 2 develop health / fitness; 3 enjoyment gained through physical activity; 4 skill development / motor skills / understanding strategies / creativity; 5 develop social skills / teamwork / work with others / cooperation; 6 create a competitive environment / learn to win and lose; 7 give confidence / success; 	2																											
1(a)(ii)	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"></td> <td style="width: 30%; text-align: center;">sport</td> <td style="width: 40%;"></td> </tr> <tr> <td>1</td> <td>always competitive</td> <td>physical education</td> </tr> <tr> <td>2</td> <td>(played) after school / at clubs</td> <td>only some aspects are competitive;</td> </tr> <tr> <td>3</td> <td>for few / selected</td> <td>learned in schools / lessons;</td> </tr> <tr> <td>4</td> <td>aims to develop specific / few skills</td> <td>for all / everybody;</td> </tr> <tr> <td>5</td> <td>aims to develop specific tactics</td> <td>aims to develop many skills;</td> </tr> <tr> <td>6</td> <td>coach-led</td> <td>aims to develop generalised tactics;</td> </tr> <tr> <td>7</td> <td>more extrinsic rewards</td> <td>teacher-led;</td> </tr> <tr> <td></td> <td></td> <td>fewer extrinsic rewards;</td> </tr> </table> <p>Both sides of any point must be given for a mark to be credited.</p>		sport		1	always competitive	physical education	2	(played) after school / at clubs	only some aspects are competitive;	3	for few / selected	learned in schools / lessons;	4	aims to develop specific / few skills	for all / everybody;	5	aims to develop specific tactics	aims to develop many skills;	6	coach-led	aims to develop generalised tactics;	7	more extrinsic rewards	teacher-led;			fewer extrinsic rewards;	2
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1(b)	<p>(antagonists)</p> <ol style="list-style-type: none"> 1 (antagonist function) relax to allow prime mover / agonist to work; 2 (antagonist example) biceps femoris at knee OR gluteus maximus at hip; <p>(fixators)</p> <ol style="list-style-type: none"> 3 (fixator function) stop undesired actions / control movement / stabilise joints / neutralise unwanted movements; 4 (fixator example) gastrocnemius at knee OR rectus femoris / gluteus maximus at hip; <p>Accept alternative valid examples of antagonists / fixators.</p>	4																											

Question	Answer	Marks
1(c)	<p>6 marks for 6 of:</p> <p>(Hick's law)</p> <ol style="list-style-type: none"> 1 involves choice reaction time; 2 at low levels of number of stimuli, choice reaction time linearly related to number of choices / as choices increase so does reaction time; 3 reaction time levels off / flattens as choice number becomes high; 4 idea of presenting opponents with variety of choices so unable to react quickly / do not keep attempting same movement; <p>(psychological refractory period) (sub-max. 4 marks)</p> <ol style="list-style-type: none"> 5 defender must respond to first stimulus before they can deal with second stimulus; 6 takes longer to respond to a second stimulus / delay in processing second stimulus until response to first stimulus has been completed; 7 e.g. used in football / games for faking / dummymyng / feinting opponent; 8 e.g. occurs when ball gets deflected in football; 9 defender responds to first stimulus of ball / attacker before they can respond to second stimulus; 10 meanwhile ball / attacker changes direction / attacker evades tackle; 11 single-channel hypothesis ...; 12 ... can only deal with one item of information at a time; 	6
1(d)	<p>3 marks for any 3 of:</p> <ol style="list-style-type: none"> 1 gravity / weight acts downwards / affects vertical component; 2 gravity / weight reduces height achieved / brings ball back to Earth; 3 air resistance primarily affects horizontal component / distance achieved; 4 air resistance also affects vertical component / height achieved; 5 effect of air resistance depends on mass / size / shape / flight time of ball; 	3

Question	Answer	Marks
2(a)	4 marks for any 4 of: 1 lots of myoglobin; 2 many mitochondria; 3 many capillaries; 4 high levels of oxidative enzymes; 5 high levels of glycolytic enzymes; 6 large motor neurones; 7 fast speed of contraction; 8 high force of contraction; 9 relatively resistant to fatigue;	4
2(b)	1 (A) angular momentum; 2 (B) moment of inertia; 3 (C) angular velocity; 4 angular momentum = moment of inertia \times angular velocity / $A = B \times C$;	4
2(c)	2 marks for any 2 of: 1 verbal; 2 manual; 3 mechanical;	2
2(d)	6 marks for any 6 of: 1 intrinsic motivation can lead to greater feeling of enjoyment / satisfaction / confidence; 2 intrinsic motivation can ensure that the performer adheres to the task; 3 intrinsic motivation is difficult to sustain (over time); 4 extrinsic motivation can lead to greater (material) rewards; 5 extrinsic motivation can increase competitiveness; 6 but extrinsic motivation can replace enjoyment / intrinsic motives; 7 too much extrinsic motivation can lead to losing the joy of competing; 8 too much extrinsic motivation can lead to deviant behaviour / cheating; Accept suitable alternative evaluations.	6

Question	Answer	Marks
2(e)	<p>1 mark for identifying a mechanism (max. 2 marks).</p> <p>1 mark for a corresponding description (max. 2 marks).</p> <ol style="list-style-type: none"> 1 skeletal / muscle pump mechanism; 2 contraction of skeletal muscles compresses vein walls helping to force blood back to the heart; 3 respiratory pump mechanism; 4 changes in pressure in the thoracic / chest cavity put pressure on the abdominal veins helping to force blood back to the heart; 5 venous tone / smooth muscle; 6 partial contraction of smooth muscle in vein wall helps to force blood back to the heart; 7 suction pressure / cardiac suction; 8 pressure changes in atria cause reduced pressure in large veins so blood is sucked into the heart; 	4

Question	Answer	Marks
3(a)	<ol style="list-style-type: none"> 1 internally paced because performer decides when to start the serve / how fast to perform the serve; 2 discrete because the serve has a clear beginning and end; 3 high organisation because difficult to separate subroutines of the serve / practice as whole skill / lots of information to process / many decisions to be made; <p>Accept alternative classifications if appropriately justified.</p>	3
3(b)	<ol style="list-style-type: none"> 1 HR during exercise becomes (120% of 70) = 84 AND SV during exercise becomes (120% of 80) = 96; 2 (stated or implied by calculation) $Q = SV \times HR$; 3 (numerical answer) 8064; 	3

Question	Answer	Marks
4	<p>5 marks for 5 of:</p> <p>during inspiration (sub-max. 4 marks)</p> <ol style="list-style-type: none"> 1 stronger contraction of diaphragm / external intercostal muscles; 2 sternocleidomastoids / pectoralis minor / scalenes contract; 3 ribs forced further up and out; 4 volume of lungs / thoracic cavity increases; 5 pressure within lungs further reduced; <p>during expiration</p> <ol style="list-style-type: none"> 6 expiration becomes active; 7 rectus abdominus muscles / internal intercostals are stimulated to contract; 8 ribs move / chest moves down quicker / more forcibly; <p>Accept opposite of point 4 and point 5 for during expiration, but do not credit for both during inspiration and during expiration.</p>	5

Question	Answer	Marks
5	<p>6 marks for any 6 of:</p> <ol style="list-style-type: none"> 1 importance of occasion / match / need to win / win-at-all-costs ethic / pressure; 2 media hype / local derby / religion / culture; 3 incitement by crowds / opposition / retaliation / gamesmanship / bad sportsmanship; 4 referee's decisions; 5 overarousal of players / drugs; 6 frustration / losing / unable to play well; 7 type of activity includes physical contact making violence more prevalent; 8 use of weapons / cues such as (ice) hockey sticks; 9 dehumanisation of players such as helmets / pads; 10 personality trait; 	6

Question	Answer	Marks
6(a)	1 (positive transfer) the learning of one skill helps the learning of another skill; 2 (negative transfer) the learning of one skill impairs the learning of another skill;	2
6(b)	situation A 1 (a suitable example of two skills) e.g. tennis serve and volleyball serve / netball pass and basketball pass; 2 (justification) positive transfer is likely when skills have highly similar actions depending upon similar motor abilities / same muscles / movements; situation B 3 (a suitable example of two skills) e.g. playing strokes in badminton and tennis have similar actions but subtle differences (wrist action); 4 (justification) negative transfer is likely when two skills are similar but do not involve identical actions, using similar abilities in slightly different ways, such that they interfere with each other; situation C 5 (a suitable example of two skills) e.g. swimming front crawl and snow plough in skiing; 6 (justification) zero transfer is likely when two skills have dissimilar movement patterns using differing abilities and the two skills do not interact;	6

Question	Answer	Marks
7(a)	3.72%;	1
7(b)	<p>7 marks for any 7 of:</p> <ol style="list-style-type: none"> 1 improved equipment such as electronic starting blocks / timing devices allowing greater accuracy; 2 improved (weight) training equipment / resistance machines allowing improved fitness; 3 improved clothing such as compression wear / lycra to reduce wind resistance; 4 improved footwear such as sprint shoes / use of spikes to improve grip / friction; 5 improved tracks / surfaces such as plastic / tartan tracks / to improve grip / friction; 6 improved training facilities / indoor tracks to improve environment and hence fitness; 7 use of cameras for motion / gait analysis to improve technique; 8 use of wind tunnels in training to improve technique; 9 use of force platforms to measure impulse to improve technique; 10 use of software / Radio-Frequency Identification (RFID) / GPS chips to track runner's speed, distance and movement patterns to improve technique; <p>Requires identification of the type of technology and description of how it may enable faster times to be achieved for each mark.</p> <p>Accept alternative valid identifications with relevant description.</p>	7

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