SPORT & PHYSICAL EDUCATION **8386/13**

Paper 1 Theory **May/June 2024**

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 May/June 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

This document consists of **10** printed pages.

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.

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.

Question	Answer	Marks
1(a)	4 marks for any 4 of: 1 planned / progressive learning; 2 part of the school curriculum; 3 delivered to all **pupils**; 4 becoming more **physically** competent; 5 teacher-led; Accept other suitable descriptions.	**4**
1(b)	6 marks for any 6 of: 1 schemas are generalised (patterns of) movements / motor programmes; 2 learn how to adapt skills **OR** make links with previously learned skills **OR** movements / motor programmes are modified; 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 / throwing; 6 vary practice conditions; 7 use distributed practice **OR** include breaks into training; 8 make practice conditions relevant to the game **OR** make practice realistic; 9 use slow-motion / video / demonstrations / **visual** guidance; 10 use (plenty of) feedback; 11 use challenging / progressive tasks; 12 use **transfer** of learning;	**6**

Question	Answer	Marks
1(c)	4 marks for 4 of: (advantages sub-max. 2 marks) 1 highlights key elements / cues **OR** give clear idea of what needs to be done; 2 supports other types of guidance; 3 to reinforce correct movements **OR** identify / correct errors; 4 maintains attention / concentration of learner; 5 can be used to motivate / increase confidence learner; 6 can be good for performers at the associative / autonomous stage; 7 can be given quickly; 8 can be given during performance; (disadvantages sub-max. 2 marks) 9 **limited value** for beginners / cognitive stage; 10 can cause information overload **OR** learner may not take in key points **OR** can confuse learner; 11 difficult to express clearly what is required **OR** some skills are difficult to describe **OR** difficult to create a mental image of the skill; 12 can distract learner (during performance); 13 may be inaccurate / incorrect;	**4**
1(d)	1 (resting heart rate) decreases; 2 (stroke volume during sub-maximal exercise) increases; 3 (heart rate during maximal exercise) no change / no effect;	**3**

Question	Answer	Marks
2(a)(i)	ball and socket;	1
2(a)(ii)	humerus **AND** scapula;	1
2(a)(iii)	anterior deltoid;	1

Question	Answer	Marks
2(b)	(Newton's second law) 1 acceleration / rate of change of momentum of the **ball** / **shuttle**; 2 is **proportional** to the size of the force applied by the **racket** / **performer** **OR** is **proportional** to the size of the force applied to the **ball** / **shuttle**; 3 the **ball** / **shuttle** will accelerate in the direction the force is applied; (Newton's third law) 4 an (action) **force** is applied (by the racket) to the **ball** / **shuttle**; 5 an **equal reaction** / **force** is applied (by the ball / shuttle) to the **racket**; 6 … in the **opposite** direction to the action force; Accept other appropriate applications.	**6**
2(c)	1 air resistance / friction; 2 (air resistance / friction arrow) must be in opposite direction to motion **AND** touching the ball / from the centre of ball; 3 weight / gravitational force; 4 (weight / gravitational force arrow) must be vertically downwards **AND** from the **centre** of the ball;	**4**

Question	Answer	Marks
3(a)(i)	1 (type of movement) extension; 2 (main agonist) triceps brachii; 3 (antagonist) biceps brachii; 4 (type of muscle contraction in the agonist) concentric;	**4**
3(a)(ii)	3 marks for any 3 of: 1 area of the base of support; 2 height of the centre of mass; 3 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 mass of body / basketball player;	**3**

Question	Answer	Marks
3(b)	5 marks for any 5 of: 1 physical well-being **OR** physical health; 2 mental well-being **OR** mental health; 3 social well-being **OR** social health; 4 sportsmanship / fair play; 5 participation ethic; 6 a basis for self-realisation; 7 a form of social control; Accept other suitable values.	**5**
3(c)(i)	1 (part) practising by splitting a **skill** into subroutines; 2 (varied) practising the **same skill** in different situations;	**2**
3(c)(ii)	1 (massed), e.g. practising by shooting continuously / no rest intervals / very short rest intervals; 2 (distributed), e.g. practising by shooting with long breaks / rest periods between attempts;	**2**
3(c)(iii)	4 marks for any 4 of: 1 good for discrete skills / skills that are brief / short, e.g. shooting; 2 good for simple skills, e.g. passing; 3 good for experienced / autonomous basketball players; 4 good for fitter basketball players; 5 good for improving basketball players' fitness / stamina / muscular endurance / maintaining performance when fatigued; 6 good for more motivated basketball players; 7 strengthen stimulus–response bond **OR** develops motor programme **OR** creates muscle memory; 8 efficient / quicker learning **OR** takes up less practice time;	**4**

Question	Answer	Marks
3(d)	7 marks for any 7 of: 1 nature of game / some inevitable contact between players / many people in a small area of the court; 2 frustration / goals blocked; 3 poor performance / losing; 4 poor refereeing decisions; 5 previous experience / scores to settle from past encounter; 6 fouls by opponent **OR** verbal / physical abuse from opponent **OR** intimidation from opponent **OR** retaliation; 7 hostile crowd / abuse from crowd; 8 proximity of crowd; 9 rivalry / local derby; 10 **very** high arousal levels / over arousal; 11 importance of event; 12 win-at-all-costs attitude / pressure to win; 13 pressure from others / coaches; 14 emotional / off-the-court issues; 15 innate / genetic / trait; 16 use of drugs; Accept other suitable suggestions.	7

Question	Answer	Marks
4(a)	1 (increasing speed) **curve** with gradient increasing from 0–3 seconds; 2 (constant speed) straight line with constant gradient from 3–8 seconds; 3 (decreasing speed) **curve** with decreasing gradient from 8–11 seconds; 4 (stationary) horizontal line from 11–14 seconds;	4
4(b)(i)	1 (working) (average momentum =) mass $\times$ velocity **OR** 90×8.46; 2 (answer) 761.4 kilogram(s) metres per second;	2
4(b)(ii)	1 (working) time = displacement $\div$ average velocity **OR** $100 \div 8.46$; 2 (answer) 11.82 (seconds);	2

Question	Answer	Marks
5	5 marks for any 5 of: 1 movement of **carbon dioxide AND oxygen** (across a membrane); 2 partial pressure is the pressure a gas exerts in a mixture of gases; 3 gases diffuse from an area of high pressure to an area of low pressure; 4 difference between high partial pressure and low partial pressure is called a diffusion gradient; 5 the greater / steeper the diffusion gradient the faster the diffusion; 6 in alveoli the partial pressure of oxygen is high **OR** in alveoli the partial pressure of carbon dioxide is low; 7 in capillaries the partial pressure of oxygen is low **OR** in capillaries the partial pressure of carbon dioxide is high; 8 oxygen diffuses **from** alveoli **to** capillaries **OR** carbon dioxide diffuses **from** capillaries **to** alveoli;	**5**