Cambridge Assessment International Education

Cambridge IGCSE™

PHYSICAL EDUCATION **0413/11**

Paper 1 Theory **October/November 2023**

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 2023 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

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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 descriptors 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	‘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.

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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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Question	Answer	Marks
1(a)(i)	1 mark for each description: real risk: the actual / objective amount of risk / level of danger that exists; perceived risk: subjective view of performer about the risk / how dangerous the performer thinks it is / personal judgement / fear the performer has when participating;	**2**
1(a)(ii)	1 mark for each different example. Max. 1 mark per physical activity. canoeing: falling into the water and drowning / catching diseases from water / entering the water and suffering cold water shock or hypothermia; rock climbing: injuries from falling from the cliff / loose rocks hitting climbers causing harm to climber; Accept other relevant examples.	**2**
1(a)(iii)	1 mark for each identification of equipment and 1 mark for each description of how it helps reduce injury, for example: (canoeing) protective equipment: helmet / life jacket / gloves; how it reduces injury: performer does not bang their head / keeps them afloat / reduces risk of drowning; (rock climbing) protective equipment: helmet / gloves / boots / knee or elbow pads / harness / ropes; how it reduces injury: stops rocks hitting their head / gives grip / helps prevent slipping or falling / protects parts of the body against rough surfaces; Accept other relevant examples of protective equipment and ways it can help reduce injury.	**4**

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Question	Answer	Marks
1(b)	4 marks for any 4 of: wear appropriate footwear / clothing; lifting / carrying equipment safely or moving equipment in training; maintaining hydration throughout competition / training; use of warm up / cool down; following rules or providing instructions / educate performers of risks; suitable level of competition / relevant age or gender groups; preparation (physical or mental) / training / practice / being fit enough for the activity / using correct technique; ensure sufficient recovery time / avoid overtraining / provide rest; use of risk assessments / ensure safe environment; appropriate supervision; Accept other relevant strategies.	**4**

Question	Answer	Marks
2(a)	1 mark for a type of health and 1 mark for relevant justification, for example: social (health); – it is harder to develop friendships / mix with other people / feel part of a team in individual activities; mental (health); – due to loneliness / time away from family; physical (health); – you have no one else to encourage / provide motivation / encourage you to keep going / training or you stop playing that sport as no other person to push you to attend;	**2**
2(b)	1 mark for: environment;	**1**

Question	Answer	Marks
2(c)	2 marks for: inability to train / unable to train as hard or often due to ill health; decreased fitness; **OR** ill health but still able to train more / regularly / may wish to feel better; increased fitness;	**2**

Question	Answer	Marks
3	1 mark for personality type and 1 mark for characteristic: personality type: introvert; description: quiet / reserved / crowd tend to tire performer / preferring a small group of close friends / enjoying solitude / high self-awareness / learning by watching / stimulation leaves you distracted and / or unfocused / prefer own company or to be alone / tend to prefer low level of arousal / often better at fine skills; Accept other relevant characteristics.	**2**

Question	Answer	Marks
4(a)	1 mark for fibre type: slow twitch; 1 mark for each characteristic to max. 3 marks: contracts slowly; produces little force; high fatigue tolerance / do not tire quickly; good for endurance; aerobic energy supply; red colour;	**4**

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Question	Answer	Marks
4(b)(i)	1 mark for each description: improved production of red blood cells; increased oxygen-carrying capacity / increase oxygen delivery to muscles; increases VO_2 max; improved levels of cardiovascular endurance / stamina; performance levels improve when returning to low altitude; higher lactic acid threshold; Accept other relevant descriptions.	**3**
4(b)(ii)	1 mark for each of the following reasons: unable to deal with demands / more stress placed on the body / more prone to fatigue; overtraining may occur; become ill / suffer altitude sickness / negative effects on the immune system; loss of muscle mass; may experience dizziness / nausea; hard to access; cost / financial implications; benefits will only last short period of time / time constraints; Accept other relevant reasons.	**3**

Question	Answer	Marks
5(a)	1 mark for: continuous (training);	**1**
5(b)	1 mark for: tedium;	**1**

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>5(c)</td><td>1 mark for each type of motivation (2 marks max.) and 1 mark for practical example of how each is used (2 marks max.):
<table>
<tr><th>motivation type</th><th>example</th></tr>
<tr><td>intrinsic;</td><td>the swimmer attends practice for participation for own sake / self-satisfaction / feeling good after the swim / health and fitness benefits / improved technique (front crawl) / to achieve personal goals;</td></tr>
<tr><td>extrinsic;</td><td>the swimmer attends training to receive praise from coach / certificates / rewards / medals / trophies / fame / money for winning races swimming certain distances;</td></tr>
</table></td><td>4</td></tr>
</table>

Question	Answer	Marks
6(a)(i)	1 mark for: maintain a good position in the saddle / being stable when jumping / maintaining good posture / keeps them upright so they do not fall off;	**1**
6(a)(ii)	1 mark for each description: (gravity) when the horse / rider is in the air the pull of gravity pulls them back down towards the ground; (air resistance) opposes the movement of the horse which slows them down / increases as speed increases;	**2**
6(b)	1 mark for: force applied at release / muscular force;	**1**

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Question	Answer	Marks
7(a)	4 marks for: A: triceps; B: latissimus dorsi; C: abdominals; D: quadriceps (group);	**4**
7(b)(i)	1 mark for: hinge;	**1**
7(b)(ii)	2 marks for: abduction; adduction; rotation; dorsiflexion; plantar flexion; Accept other relevant types of movement.	**2**
7(b)(iii)	1 mark for: ball and socket; Accept other appropriate joint types.	**1**

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Question	Answer	Marks
7(c)	1 mark for each identification (3 marks max.). 1 mark for each description of a different role (3 marks max.), for example: synovial membrane; produces synovial fluid / lines the cavity of the joint / encloses the joint; synovial fluid; acts as a lubricant / allows smooth movement / protects the joint / reduces wear or tear / helps reduces friction / absorbs shock; joint (fibrous) capsule; surround / protects the joint / hold bones together / cushions; ligaments; attaches bone to bone / holds bones together / keeps bones in place / stabilises the joint; Accept other relevant components and appropriate roles.	**6**

Question	Answer	Marks
8	1 mark for each description (3 marks max.) and 1 mark for each example (3 marks max.): (coordination) ability to move / use two body parts at the same time; (example) moving legs and flicking wrist to return the shuttlecock / looking at the shuttle cock whilst performing an overhead clear; (reaction time) time it takes to respond or initiate movement to a stimulus or how fast a player responds to a stimulus; (example) a player sees a drop shot being played and quickly moves to return it / returning a fast shot / smash; (power) the ability to combine strength and speed or ability to quickly contract muscles with strength; (example) playing a smash;	**6**

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Question	Answer	Marks
9(a)(i)	1 mark for each suggestion: reduce chances of tiredness / fatigue; less risk of suffering muscle soreness; less likely to lose of interest / lack of motivation / lower self-esteem; less likely to have difficulty sleeping prior to competition; less likely of loss of appetite; less prone to mood swings / irritable; less prone to minor infections / illness so unable to compete (accept examples); less likely to suffer overuse injuries / less prone to minor injuries so performance will be worse (accept examples); less likely to lose weight / strength; helps prevent reversibility occurring / lower likelihood of levels of performance reducing; maintain social life away from training; Accept other relevant suggestions.	**3**
9(a)(ii)	1 mark for each suggestion: to keep up with the competition / opposition / level the playing field / belief that others are taking PEDs; winning medals / event; increase fame; increase wealth; gain an unfair advantage; pressure from coaches / peers / pressure to win; control / heighten arousal; reduce anxiety; increase alertness; Accept other relevant suggestions.	**2**

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Question	Answer	Marks
9(b)	1 mark for each disadvantage: financial penalties; public humiliation / reputation ruined; disqualification / banned; loss of records / medals; lose sponsorship deals; Accept other relevant disadvantages.	**3**
9(c)	1 mark for each advantage: improved stadia / training facilities; home advantage / chance of winning more medals; increased national pride / feel-good factor; increased revenue; more employment opportunities; legacy benefits; improved infrastructure / roads / transport; more housing; Accept other relevant advantages.	**4**

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Question	Answer	Marks
10(a)	4 marks for 4 of: highest performance level; very few performers reach this level; representing country in national / international competition; mostly professional; train full time; access training groups / high-quality coaching; national training camps; sports science / medical / diet / psychological support; attend advanced training camps (accept examples such as altitude training); access to high-quality facilities / equipment or equipment specifically made for performer; financial support / funding / sponsorship available; high media interest / spectator interest; Accept other relevant characteristics.	**4**
10(b)	3 marks for: foundation; participation; performance;	**3**
10(c)	1 mark for: movements or skills are habitual / take place without conscious thought / performer in full control / very few or no mistakes / mainly use intrinsic feedback / able to analyse own performance / can correct own mistakes; Accept other relevant characteristics.	**1**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>11(a)</td><td>1 mark for each difference:

<table><tr><th>aerobic</th><th>anaerobic</th></tr><tr><td>uses oxygen</td><td>does not use oxygen;</td></tr><tr><td>produces carbon dioxide</td><td>does not produce carbon dioxide;</td></tr><tr><td>produces water</td><td>does not produce water;</td></tr><tr><td>does not produce lactic acid</td><td>produces lactic acid;</td></tr><tr><td>can be used for long time</td><td>can only be used for short time;</td></tr><tr><td>used during low- / moderate-intensity exercise</td><td>used during high-intensity exercise;</td></tr></table></td><td>2</td></tr>
<tr><td>11(b)</td><td>1 mark for each example in the same relevant named physical activity, for example:
aerobic situation: jogging to maintain position on football pitch / cycling long distances;
anaerobic situation: an explosive sprint by a football player / a sprint finish at the end of a cycle race;

Accept other relevant examples.</td><td>2</td></tr>
</table>

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Question	Answer	Marks
12	1 mark for each media type: television; internet; social media; print; radio;	**2**

Question	Answer	Marks
13(a)	1 mark for type of anxiety (2 marks max) and 1 mark for example (2 marks max): cognitive; (example) fear / worry / doubt / difficulties concentrating / anticipating the worst outcomes / mind often going blank / irrational fears and dread / uncontrollable or obsessive thoughts; somatic; (example) butterflies (in stomach) / dry mouth / increased breathing or heart rate / sweaty palms / nausea or sickness / shaking; Accept other relevant examples.	**4**
13(b)(i)	1 mark for relaxation technique: mental rehearsal; visualisation; deep breathing; Accept other relevant relaxation techniques.	**1**
13(b)(ii)	2 marks for 2 of: reduce heart rate / lower heart rate; help control breathing / lower breathing rate; control aggression; part of the build-up to match readiness; increased or improve concentration or selective attention / focuses mind on exercise / helps prepare mentally for competition;	**2**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>14(a)</td><td>1 mark for each correct bone:
A tibia;
B tarsals;
C phalanges;</td><td>3</td></tr>
<tr><td>14(b)(i)</td><td>1 mark for:
long;</td><td>1</td></tr>
<tr><td>14(b)(ii)</td><td>1 mark for:
short;</td><td>1</td></tr>
<tr><td>14(c)</td><td>1 mark for each of a minor injury, relevant cause and relevant treatment:
<table>
<tr><th>minor injury</th><th>cause</th><th>treatment</th></tr>
<tr><td>blisters;</td><td>friction / rubbing of skin;</td><td>plaster;</td></tr>
<tr><td>cuts;</td><td>being hit by opponent or equipment / standing on sharp object;</td><td>clean / plaster;</td></tr>
<tr><td>grazes;</td><td>falling over / slide tackling / scraping foot on rough surface;</td><td>clean / gauze;</td></tr>
</table>
Allow other appropriate minor injuries and appropriate causes and treatments.</td><td>3</td></tr>
</table>

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