



## Cambridge International AS & A Level

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PHYSICAL EDUCATION

9396/11

Paper 1

May/June 2020

MARK SCHEME

Maximum Mark: 90

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**Published**

Students did not sit exam papers in the June 2020 series due to the Covid-19 global pandemic.

This mark scheme is published to support teachers and students and should be read together with the question paper. It shows the requirements of the exam. The answer column of the mark scheme shows the proposed basis on which Examiners would award marks for this exam. Where appropriate, this column also provides the most likely acceptable alternative responses expected from students. Examiners usually review the mark scheme after they have seen student responses and update the mark scheme if appropriate. In the June series, Examiners were unable to consider the acceptability of alternative responses, as there were no student responses to consider.

Mark schemes should usually be read together with the Principal Examiner Report for Teachers. However, because students did not sit exam papers, there is no Principal Examiner Report for Teachers for the June 2020 series.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the June 2020 series for most Cambridge IGCSE™ and Cambridge International A & AS Level components, and some Cambridge O Level components.

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This document consists of **13** 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 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.

**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: 1 iliopsoas – (hip) flexion; 2 e.g. front crawl leg kick / kicking a ball / running etc.; 3 gracilis – (hip) adduction; 4 e.g. horse riding / breaststroke leg kick / astride vault (landing) etc.;	<b>4</b>
1(b)	5 marks for: 1 extension; 2 triceps brachii; 3 concentric / isotonic; 4 extension; 5 latissimus dorsi / (posterior) deltoid / teres major / triceps brachii;	<b>5</b>
1(c)(i)	2 marks for: 1 cardiac output – volume / amount of blood pumped out of ventricle / heart per minute; 2 stroke volume – volume / amount of blood leaving ventricle / heart per beat;	<b>2</b>
1(c)(ii)	1 mark for: 1 cardiac output = stroke volume $\times$ heart rate / $Q = SV \times HR$ ;	<b>1</b>
1(c)(iii)	5 marks for any 5 of: 1 impulse / wave of depolarisation / action potential; 2 starts at the SA node; 3 passes through atria causing atrial systole / contraction; 4 passes on to the AV node; 5 impulse passes down bundle of His / septum to apex of heart; 6 impulse spreads through ventricles causing ventricular systole / contraction; 7 via Purkyne / Purkinje fibres;	<b>5</b>

Question	Answer	Marks
1(d)	<p>6 marks for any 6 of:</p> <ol style="list-style-type: none"> <li>1 x-axis labelled – heart rate <b>AND</b> bpm;</li> <li>2 y-axis labelled – time <b>AND</b> seconds / minutes;</li> <li>3 heart rate starts from resting HR of approximately 50–100 bpm;</li> <li>4 initial steep increase in heart rate at beginning of run;</li> <li>5 no plateau in HR shown – peaks at end of run;</li> <li>6 peak HR between 130–205 bpm;</li> <li>7 recovery shows steep fall in HR after run;</li> <li>8 recovery tapering back to resting HR by end of recovery / 10 mins;</li> <li>9 anticipatory rise shown on graph;</li> </ol>	<b>6</b>
1(e)(i)	<p>2 marks for any 2 of:</p> <ol style="list-style-type: none"> <li>1 (goblet cells secrete) mucus – traps debris;</li> <li>2 cilia / ciliated epithelia move / waft mucus towards larynx / mouth – swallowed / coughed out;</li> <li>3 (incomplete / c-shaped) rings of cartilage maintain opening;</li> <li>4 layer of (smooth) muscle allows trachea to narrow during swallowing and coughing;</li> </ol>	<b>2</b>
1(e)(ii)	<p>5 marks for 5 of:</p> <p>(sub-max. 3 marks points 1–4)</p> <ol style="list-style-type: none"> <li>1 chemoreceptors – detect changes in carbon dioxide / blood acidity / pH / lactic acid;</li> <li>2 thermoreceptors – detect changes in temperature;</li> <li>3 mechanoreceptors / proprioceptors – detect movement (in muscles);</li> <li>4 baroreceptors – detect changes in blood pressure;</li> </ol> <ol style="list-style-type: none"> <li>5 stretch receptors – detect inflation of the lungs;</li> <li>6 Hering–Breuer reflex – prevent over-stretching of lungs;</li> <li>7 information sent to the respiratory control centre / RCC / medulla;</li> <li>8 adrenaline released – increases respiration rate;</li> </ol>	<b>5</b>

Question	Answer	Marks
2(a)	2 marks for:  1 (gross motor ability) – involves large muscle groups in the movement, for example running / kicking / catching / throwing; 2 (psychomotor ability) – involves both cognitive / information processing and action / movement, for example reaction time / balance / hand–eye coordination;	<b>2</b>
2(b)	3 marks for any 3 of:  1 exposure to activities / early coaching / more skills practised in childhood then more likely for learning to take place; 2 availability / time to practice; 3 role models / significant others / parents may be copied; 4 enough money / finances to learn motor skills in certain activities; 5 access to facilities / equipment; 6 examples of cultural / social influences affecting development;	<b>3</b>
2(c)(i)	3 marks for any 3 of:  1 involves feedback / time for feedback; 2 adjust / modify performance; 3 memory trace / motor programme initiates the movement; 4 perceptual trace controls movement; 5 this control is internal / involves proprioceptors / kinesthesia; 6 comparison of perceptual and memory trace; 7 if mismatch between traces adjustments made / if traces match movement continues; 8 comparison of outcome <b>AND</b> performance (to achieve model of correctness);	<b>3</b>

Question	Answer	Marks
2(c)(ii)	<p>3 marks for any 3 of:</p> <p><i>If no practical example max. 2 marks.</i></p> <ol style="list-style-type: none"> <li>1 programmes formed through repetition / practice / overlearning, e.g. repeat the skill over and over;</li> <li>2 programmes formed through association with other movements, e.g. associate tennis serve with overarm throwing / volleyball serve;</li> <li>3 programmes formed through meaningfulness / need, e.g. the skill is needed to play a game;</li> <li>4 programmes formed through novelty / interest / uniqueness, e.g. learn a new / more advanced skill;</li> <li>5 programmes formed through fun / enjoyment / emotional intensity, e.g. taught enthusiastically;</li> <li>6 (positive) reinforcement / rewards / encouragement / feedback helps to build programmes, e.g. praised for being correct;</li> <li>7 programmes are stored / encoded into long-term memory;</li> </ol>	<b>3</b>
2(d)(i)	<p>3 marks for any 3 of:</p> <ol style="list-style-type: none"> <li>1 perception interprets / judges information;</li> <li>2 perception filters / selects information / enables focus / selective attention / concentration / detection of appropriate stimuli;</li> <li>3 perception codes information – to make sense of it to the individual;</li> <li>4 involves DCR (detection, comparison, recognition) process;</li> <li>5 perception includes use of the memory / experiences;</li> <li>6 perception uses motor programmes from LTM – recognition of appropriate movement patterns / stimuli;</li> <li>7 perception uses schema to refine / inform processing – to make performance effective;</li> </ol>	<b>3</b>
2(d)(ii)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 relevant / specific practice / overlearning;</li> <li>2 practice with distractions;</li> <li>3 focus on / highlight specific cues;</li> <li>4 increase intensity of the stimulus;</li> <li>5 mental rehearsal / visualisation / imagery;</li> <li>6 encourage (temporal / spatial) anticipation;</li> <li>7 optimum arousal levels / zone of optimal functioning / motivate performer;</li> <li>8 transfer of learning / link to past experience;</li> <li>9 make information / practice meaningful / enjoyable / interesting / memorable;</li> </ol>	<b>4</b>



Question	Answer	Marks
2(e)(i)	3 marks for any 3 of:  1 to motivate / drive; 2 to strengthen the stimulus–response / S/R bond / reinforcement; 3 to correct / give information on errors / mistakes / improve skills / adjust motor programmes; 4 to give information on technique / knowledge of performance; 5 to give information on end result / how you got on / knowledge of results; 6 to increase confidence;	<b>3</b>
2(e)(ii)	4 marks for any 4 of:  <i>Response must be justified / reason given.</i> 1 initially limited to mainly extrinsic feedback – unable to comprehend intrinsic feedback; 2 later becomes more reliant on intrinsic feedback / self-corrects as skill improves; 3 initially needs knowledge of results – to encourage; 4 later copes with knowledge of performance – able to self-correct; 5 initially needs terminal feedback – unable to cope with concurrent feedback / feedback during skill; 6 becomes able to cope with concurrent feedback / feedback during skill – intrinsic feedback being used; 7 initially requires immediate feedback – unable to cope with delayed feedback; 8 becomes able to deal with delayed feedback – can remember intrinsic feedback; 9 initially requires positive feedback – needs encouragement / loses motivation; 10 later can deal with negative / critical feedback – seen as corrective;	<b>4</b>
2(f)	5 marks for any 5 of:  1 increases in motivation / drive / arousal results in increases in performance = function of habit x drive / $p=f(H.D)$ ; 2 linear / straight line / proportional relationship / depicted on graph / sketch; 3 but, not realistic – cannot keep improving; 4 increase in arousal = increase in likelihood of dominant response; 5 dominant response is well learned / good in expert performer; 6 leads to improved performance by expert when high arousal; 7 dominant response not well learned / weak in novice performer; 8 novice has poor performance because of high arousal;	<b>5</b>

Question	Answer	Marks
3(a)(i)	<p>3 marks for any 3 of:</p> <p>sport has / play does not have:</p> <ol style="list-style-type: none"> <li>1 extrinsic rewards / winners and losers;</li> <li>2 competition / leagues / cups;</li> <li>3 commitment / effort / training / practices;</li> <li>4 complex / defined rules;</li> <li>5 highly structured / organised / time constraints / boundaries;</li> <li>6 prescribed / standardised kit / equipment;</li> <li>7 officials / referees / judges;</li> <li>8 tactics used / skills required;</li> </ol>	<b>3</b>
3(a)(ii)	<p>4 marks for 4 of:</p> <p>individual importance – (sub-max. 3 marks)</p> <ol style="list-style-type: none"> <li>1 helps maintain / develop physical health / fitness of individual;</li> <li>2 helps maintain / develop mental health / feeling of well-being / relief from stress / relax / enjoyment;</li> <li>3 encourages individual to develop interpersonal / social skills;</li> <li>4 provides challenge / sense of achievement / develops self-esteem;</li> </ol> <p>societal importance – (sub-max. 3 marks)</p> <ol style="list-style-type: none"> <li>5 helps reduce cost of health care / improves 'health of the nation';</li> <li>6 reduces economic burden caused by ill-health, e.g. lost days from work;</li> <li>7 encourages social interaction / brings people together / can be a focus for developing community spirit;</li> <li>8 reduces anti-social behaviour / channels energy away from misbehaviour / crime and delinquency;</li> </ol>	<b>4</b>
3(a)(iii)	<p>2 marks for any 2 of:</p> <ol style="list-style-type: none"> <li>1 appreciation of the natural environment / observe nature / flora and fauna;</li> <li>2 generates respect of the countryside / environment / need for conservation / reduce pollution;</li> <li>3 provides adventure and risk to individual / adrenaline rush;</li> </ol>	<b>2</b>

Question	Answer	Marks
3(b)(i)	2 marks for any 2 of:  1 popular with media / on TV; 2 huge spectator interest; 3 involves high levels of funding / commercialised; 4 relates to national and international / high standards / top class; 5 predominantly professional performers;	<b>2</b>
3(b)(ii)	4 marks for any 4 of:  1 (named / described) government initiatives; 2 (named / described) governing body / sport-specific initiatives; 3 selection procedures; 4 structured levels of competition; 5 specialist schools / colleges / universities; 6 specialist training venues / centres of excellence; 7 elite coaching structure; 8 role of world class / development programmes / performance pathways / scholarships; 9 role of schools / clubs / local / regional governing bodies; 10 support structures / sports science / medical / dietary; 11 description of how funded;	<b>4</b>

Question	Answer	Marks
3(c)(i)	<p>4 marks for 4 of:</p> <p>voluntary – (sub-max. 3 marks)</p> <ol style="list-style-type: none"> <li>1 run by members / committee / unpaid volunteers;</li> <li>2 possibly on trust / charity basis;</li> <li>3 financed by members fees / fundraising / sponsorship / money placed back into club;</li> <li>4 runs on profit-loss but profit not an overriding concern;</li> <li>5 provide for grass roots of sport;</li> <li>6 aims to increase participation / performance in their sport / look for talent;</li> <li>7 meet up with people with similar interests;</li> </ol> <p>public – (sub-max. 3 marks)</p> <ol style="list-style-type: none"> <li>8 business operations run by local authority departments / local council / government;</li> <li>9 provide service to community;</li> <li>10 trading on set prices / charges / according to pre-set budget;</li> <li>11 may involve subsidies as a matter of policy / council tax / etc.;</li> <li>12 managed by local authority employees;</li> <li>13 move to private management / Compulsory Competitive Tendering / best value;</li> <li>14 facilities not well equipped due to lack of funds;</li> <li>15 can be pay as you go;</li> </ol>	<b>4</b>
3(c)(ii)	<p>3 marks for any 3 of:</p> <ol style="list-style-type: none"> <li>1 more choice of provision / facilities / venue;</li> <li>2 more opportunity to keep fit and healthy / to participate;</li> <li>3 better quality / up-to-date facilities / equipment;</li> <li>4 for the few / elitist / feel special;</li> <li>5 possible personal trainer / better trainers;</li> <li>6 competitive market / special offers / family membership / deals for customers;</li> </ol>	<b>3</b>

Question	Answer	Marks
3(d)	4 marks for any 4 of:  1 equal opportunity legislation; 2 break myths and stereotypes / change attitudes to women's sport; 3 increase opportunities / more clubs / suitable facilities / times for women / women-only sessions / creches; 4 increased media coverage / role models / campaigns; 5 increased funding / sponsorship / organisations / governing bodies to develop women's sports; 6 cultural promotion / less restrictions; 7 increased prize money in events; 8 encourage more women coaches / administrators / officials; 9 school programmes need to create suitable image / experience for girls; 10 offer social / recreational / family-based experiences; 11 make women's sport / clothing appear fashionable;	<b>4</b>
3(e)	4 marks for any 4 of:  1 lifetime / longer bans; 2 name and shame / miss big events; 3 make supplying / possessing drugs criminal offence; 4 more random / out of competition-time testing; 5 increased finance into research / testing / technology; 6 more awareness through education programmes; 7 worldwide / unified policies / programmes to deal with problem; 8 increased awareness of moral / health issues; 9 use of role models; 10 use of biological passports;	<b>4</b>