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**PHYSICAL EDUCATION**

**9396/12**

Paper 1

**October/November 2019**

MARK SCHEME

Maximum Mark: 90

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**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 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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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 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.

Question	Answer	Marks
1(a)	2 marks for:  1 (antagonist) relaxes to allow prime mover / agonist to work; 2 (synergist) stops undesired actions at joint / controls movement at joint / stabilises joint / assists agonist;	<b>2</b>
1(b)	2 marks for:  1 hinge; 2 tibia <b>AND</b> fibula <b>AND</b> talus;	<b>2</b>
1(c)	5 marks for:  1 concentric; 2 flexion; 3 iliopsoas / sartorius; 4 extension; 5 rectus femoris / vastus medialis / vastus intermedius / vastus lateralis;	<b>5</b>
1(d)(i)	5 marks for any 5 of:  1 deoxygenated blood enters right atrium; 2 to right ventricle – during diastole / relaxation; 3 atrial systole / contraction – blood forced out of atria / into ventricles; 4 through tricuspid / AV valve – forced open due to pressure / closes to prevent backflow; 5 ventricular systole / contracts – blood forced out of ventricle; 6 through pulmonary / semilunar valves – prevents backflow / pressure forces valve open; 7 to pulmonary artery – transports deoxygenated blood to lungs; 8 lungs – gaseous exchange / carbon dioxide removed / oxygen taken in;  <i>Explanations must be made in context.</i>	<b>5</b>
1(d)(ii)	5 marks for 5 of:  (sub-max. 3 marks) 1 movement detected by mechanoreceptors / proprioceptors (in muscles); 2 increased carbon dioxide / acidity / lower pH / detected by chemoreceptors; 3 changes in blood pressure detected by baroreceptors; 4 thermoreceptors detect increase in temperature;  5 impulses / information to cardiac control centre / medulla; 6 sympathetic nerve impulses increased; 7 parasympathetic impulses decreased; 8 (increased) stimulation of sinoatrial / SA node;	<b>5</b>

Question	Answer	Marks
1(e)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 blood velocity high in arteries / aorta;</li> <li>2 due to pumping action of heart / cardiac output;</li> <li>3 total cross-sectional area of vessels is comparatively small / narrow / small lumen;</li> <li>4 blood velocity reduces further away from the heart / as blood passes through arterioles / capillaries;</li> <li>5 increasing total cross-sectional area / peripheral resistance of arterioles / capillaries;</li> <li>6 (slow / reduced velocity) permits exchange / diffusion of gases / nutrients / waste products;</li> <li>7 blood velocity increases in venules / veins;</li> <li>8 because total cross-sectional area decreases / wider lumen;</li> <li>9 venous return mechanisms affect velocity;</li> </ol>	<b>4</b>
1(f)	<p>3 marks for any 3 of:</p> <ol style="list-style-type: none"> <li>1 provides large surface area for diffusion;</li> <li>2 thin / semi-permeable / elastic / one cell thick membrane for diffusion;</li> <li>3 short distance for diffusion;</li> <li>4 layer of moisture;</li> <li>5 large blood supply / large capillary network surrounds the alveoli;</li> </ol>	<b>3</b>
1(g)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 external intercostals / diaphragm contracts more forcefully;</li> <li>2 (inspiration) sternocleidomastoid / pectoralis minor / scalenes used;</li> <li>3 ribs move up / out more / further;</li> <li>4 (greater) increase in volume of thoracic / chest cavity / lungs;</li> <li>5 (greater) reduction in pressure in lungs / chest / thoracic cavity;</li> <li>6 air rushes in faster / greater pressure difference;</li> <li>7 expiration becomes active;</li> <li>8 (expiration) abdominals / internal intercostals are used / stimulated;</li> <li>9 ribs move down faster / more forcefully;</li> <li>10 more air forced out;</li> </ol>	<b>4</b>

Question	Answer	Marks
2(a)	4 marks for:  1 (open) – changing / unstable environment / many decisions / adjusting pass to suit environment; 2 (discrete) – passing has a clear beginning and end; 3 (internally paced) – performer decides when to pass / how fast to pass; 4 (complex) – passing has many decisions to be made / lots of information processed / used;  <i>Accept alternative classifications if justified.</i>	<b>4</b>
2(b)(i)	4 marks for any 4 of:  1 you learn by watching / copying; 2 performer needs to pay attention / cue into / selectively attend to or focuses or concentrates on aspects of display / demonstration; 3 performer needs to remember / retain the demonstration / movements / behaviours watched / create mental image / store in long-term memory; 4 performer must be capable of performing / reproducing the skill / information must be at a level relevant to performer / performer must be able to match the demonstration; 5 performer must have drive / motivation / want to learn to copy model;	<b>4</b>
2(b)(ii)	2 marks for any 2 of:  1 make it accurate / perfect demonstration; 2 use a role model / significant other; 3 demonstrate slowly / in slow motion / repeat the demonstration; 4 include verbal guidance / highlight important cues; 5 break down / simplify skill;	<b>2</b>
2(c)	4 marks for 4 of:  (sub-max. 1 mark) 1 (example) e.g. high jump (complex skill made up of parts);  (sub-max. 3 marks) 2 series of sub-routines / such as, run-up, take-off, flight and landing; 3 generalised series of movements; 4 set of neural commands / nerve impulses to muscles; 5 completed in the correct sequence / order; 6 stored in long-term memory; 7 run from short-term memory; 8 well-learned sub-routines become sub-conscious / relegated for new skill to be developed;	<b>4</b>

Question	Answer	Marks
2(d)	<p>4 marks for 4 of:</p> <p>(sub-max. 1 mark)</p> <p>1 suitable example of skill that has time for adjustments to be made, e.g. receiving a tennis serve;</p> <p>(sub-max. 3 marks)</p> <p>2 involves feedback / time for feedback (accept diagrams);</p> <p>3 movements initiated by a memory trace;</p> <p>4 this control is internal / involves proprioceptors / kinesthesia;</p> <p>5 information used to detect / correct errors;</p> <p>6 perceptual trace;</p> <p>7 compared to memory trace;</p> <p>8 if traces match – movement continues;</p> <p>9 if traces different – adjustments made to movement / corrections;</p>	<b>4</b>
2(e)	<p>4 marks for any 4 of:</p> <p><i>Must include an effect on reaction time for each factor.</i></p> <p>1 number of stimuli / number of possible alternative responses / number of decisions to be made / open / complex / externally paced skills slows reaction time;</p> <p>2 psychological refractory period / single channel hypothesis slows reaction time;</p> <p>3 distractions / ability to selectively attend / focus;</p> <p>4 age / senses deteriorating;</p> <p>5 gender – females generally slower;</p> <p>6 level of personal fitness / health / injury / length of neural pathways / height slows reaction time;</p> <p>7 past experience / presence of motor programmes / level of skill / ability quickens reaction time;</p> <p>8 relevant environmental factors – weather / temperature;</p> <p>9 consumption of alcohol or drugs / medication;</p> <p>10 amount of (recent) sleep / level of arousal / anxiety / stress / alertness;</p> <p>11 type of stimulus – bright / loud;</p> <p>12 personality – extroverts / introverts;</p> <p>13 anticipation quickens / reduces reaction time;</p> <p><i>Accept explanations of other relevant factors.</i></p>	<b>4</b>
2(f)	<p>4 marks for 4 of:</p> <p>(sub-max. 1 mark)</p> <p>1 cognitive (phase of learning);</p> <p>(sub-max. 3 marks)</p> <p>2 needs instruction / demonstration / guidance;</p> <p>3 tries to form mental image;</p> <p>4 trying to understand / lacks understanding;</p> <p>5 many errors;</p> <p>6 can only act on extrinsic feedback / cannot use intrinsic feedback;</p> <p>7 motor programme not yet developed / use trial and error;</p>	<b>4</b>

Question	Answer	Marks
2(g)	4 marks for any 4 of:  1 humans have a drive / need / motivation / desire to achieve / solve a problem / to win or learn; 2 practice / rehearsal / performance takes place to satisfy this need or drive; 3 if skill is performed successfully then learning is reinforced / satisfaction; 4 drive reduced when (perceived) success is experienced; 5 therefore motivation to do more reduces / subsides; 6 too much practice leads to drive reduction / reactive inhibition; 7 new tasks / goals / motivation is needed to remove this reduction in drive;	<b>4</b>

Question	Answer	Marks																		
3(a)(i)	<p>4 marks for any 4 of:</p> <p><i>Max. 3 marks if not related to a physical activity.</i></p> <ol style="list-style-type: none"> <li>1 done in free time / freedom of choice / voluntary;</li> <li>2 non-serious / fun / enjoyment;</li> <li>3 there is no moral obligation, e.g. to coach or team mates;</li> <li>4 you gain satisfaction / well-being / self-fulfilment from taking part / take part for intrinsic reasons / motivation;</li> <li>5 there are very few rules / modified rules / made up rules / no formal rules;</li> <li>6 start and finish times not fixed / few time constraints;</li> <li>7 the level of organisation is low / self-officiated / no formal officials;</li> </ol>	<b>4</b>																		
3(a)(ii)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 to maintain / improve physical health / fitness;</li> <li>2 stress relief / relax / cathartic / improved mental health / escape reality;</li> <li>3 improved social health / friendships;</li> <li>4 enjoyment / fun;</li> <li>5 to be creative / expressive;</li> <li>6 hobby to keep occupied / out of trouble;</li> <li>7 achievement / knowledge / new skills / self-esteem / self-fulfilment / refreshment;</li> <li>8 prepare individual for work;</li> </ol>	<b>4</b>																		
3(b)	<p>4 marks for any 4 of:</p> <table border="1" data-bbox="300 1149 1337 1839"> <thead> <tr> <th data-bbox="300 1149 842 1214">sport</th> <th data-bbox="842 1149 1337 1214">physical education</th> </tr> </thead> <tbody> <tr> <td data-bbox="300 1214 842 1317">1 competitive / winners and losers / extrinsic rewards</td> <td data-bbox="842 1214 1337 1317">not necessarily;</td> </tr> <tr> <td data-bbox="300 1317 842 1382">2 not necessarily</td> <td data-bbox="842 1317 1337 1382">for learning / in schools / lessons;</td> </tr> <tr> <td data-bbox="300 1382 842 1447">3 elitist / selected / professional</td> <td data-bbox="842 1382 1337 1447">for all / everybody;</td> </tr> <tr> <td data-bbox="300 1447 842 1512">4 choice / voluntary / free time</td> <td data-bbox="842 1447 1337 1512">compulsory;</td> </tr> <tr> <td data-bbox="300 1512 842 1576">5 aims to develop specific / few skills</td> <td data-bbox="842 1512 1337 1576">aims to develop many skills;</td> </tr> <tr> <td data-bbox="300 1576 842 1677">6 aims to develop fitness</td> <td data-bbox="842 1576 1337 1677">health-related / relieve stress / increase participation;</td> </tr> <tr> <td data-bbox="300 1677 842 1742">7 serious / commitment</td> <td data-bbox="842 1677 1337 1742">non-serious / fun;</td> </tr> <tr> <td data-bbox="300 1742 842 1839">8 not necessarily / gamesmanship</td> <td data-bbox="842 1742 1337 1839">develop understanding / morals / ethics / fair play;</td> </tr> </tbody> </table> <p><i>Accept other valid differences.</i></p>	sport	physical education	1 competitive / winners and losers / extrinsic rewards	not necessarily;	2 not necessarily	for learning / in schools / lessons;	3 elitist / selected / professional	for all / everybody;	4 choice / voluntary / free time	compulsory;	5 aims to develop specific / few skills	aims to develop many skills;	6 aims to develop fitness	health-related / relieve stress / increase participation;	7 serious / commitment	non-serious / fun;	8 not necessarily / gamesmanship	develop understanding / morals / ethics / fair play;	<b>4</b>
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Question	Answer	Marks
3(c)(i)	2 marks for any 2 of:  1 refers to performers who have reached excellence; 2 this relates to national / international / Olympic standards; 3 top of the performance pyramid / achieved by few; 4 professional / paid;	<b>2</b>
3(c)(ii)	5 marks for any 5 of:  1 talent-identification programme / talent spotting / regional scouts; 2 attract funding / sponsorship / media income / TV deals / athlete personal award / eq.; 3 high-quality facilities / centres of excellence; 4 coaching structure / high-quality coaching; 5 support – sport science / medical / psychological support / mental health support / physiotherapy / nutritional advice / biomechanics; 6 second example of the above; 7 structured levels of competition; 8 structured progression route / development squads / training camps; 9 coordinated approach from sporting authorities / whole sport plans; 10 education and career support / Athlete Career Education / eq.;	<b>5</b>
3(d)	6 marks for 6 of:  (voluntary sub-max. 4 marks) 1 run by unpaid members / committee; 2 financed by members' fees / fund-raising / sponsorship / donations / charity; 3 runs on profit-loss but profit not an overriding concern; 4 provide for grass roots of sport / community use / to increase participation; 5 socialisation important / meet people with similar interests;  (public sub-max. 4 marks) 6 business run by local authority / council / eq.; 7 trading at set prices / pre-set budget / no need for profit; 8 subsidised by local taxes / council tax; 9 managed by employees; 10 usually 'pay as you go' / not necessarily subscription-based;	<b>6</b>

Question	Answer	Marks
3(e)	5 marks for any 5 of:  1 increased security / police / CCTV in grounds; 2 banning of alcohol within grounds / drunks / local establishments / pubs shut early; 3 moving kick off / start times; 4 segregation of rival fans; 5 restriction / control of ticket sales / family areas / use of identity cards; 6 all-seater stadia; 7 police intelligence / sharing of intelligence; 8 prevention of known troublemakers travelling to matches / need to report to local police / life ban / eq.; 9 ban / fine team / country / close stadia / play behind closed doors; 10 better player behaviour / not inciting spectators; 11 appeal by role models / NGBs for fans to behave / fan-education schemes / campaigns; 12 responsible media reporting / media do not sensationalise spectator violence;	<b>5</b>