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**PHYSICAL EDUCATION**

**9396/32**

Paper 3

**October/November 2018**

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 2018 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)(i)	2 marks for:  1 (energy) the capacity / ability to perform work / ability to create movement; 2 (power) the rate at which work is performed <b>OR</b> amount of work performed per unit of time <b>OR</b> strength · speed;	<b>2</b>
1(a)(ii)	3 marks for any 3 of:  1 ATP; 2 PC; 3 carbohydrates; 4 glycogen; 5 fats / lipids / FFAs; 6 proteins; 7 lactic acid;  <i>Accept other examples of correct fuels.</i>	<b>3</b>
1(b)	5 marks for 5 of:  (sub-max. 1 mark) 1 ATP / PC system <b>OR</b> alactic system;  (sub-max. 4 marks) 2 anaerobic / does not need oxygen; 3 phosphocreatine / PC is broken down to produce energy <b>OR</b> $PC \rightarrow P + C + \text{energy}$ ; 4 energy is used to resynthesise ATP <b>OR</b> $\text{energy} + ADP + P \rightarrow ATP$ ; 5 enzyme – creatine kinase; 6 site of reaction – sarcoplasm; 7 yield – 1 ATP per molecule of PC;	<b>5</b>
1(c)	4 marks for any 4 of:  1 reduces risk of injury / DOMS; 2 increases flexibility / stretch / elasticity of muscle / connective tissue; 3 increases / redirects flow of blood / oxygen to working muscles; 4 activates vascular shunt <b>OR</b> dilates blood vessels to working muscles; 5 improves rate of dissociation of oxygen from haemoglobin; 6 increases enzyme activity; 7 increases speed of nerve impulses <b>OR</b> improves reaction time <b>OR</b> faster muscle contractions; 8 reduces EPOC / oxygen debt; 9 facilitates release of more synovial fluid into joints;	<b>4</b>

Question	Answer						Marks
1(d)(i)	4 marks for:						<b>4</b>
1 (name)	multi-stage fitness test;	Cooper <b>OR</b> 12 minute test;	PWC 170 test;	step test (various);	Douglas bag / direct gas / indirect calorimetry;		
2 (description)	run shuttles in time with bleeps on CD (which get progressively quicker);	performer walks / runs round a measured course / athletics track;	performer cycles (on an ergometer) and heart rate is monitored at (2 or 3) different workloads;	step up and down on a step / bench at a given rate for a given time;	run on a treadmill to exhaustion;		
3 (result / score from test)	(when performer cannot keep up with bleeps) the level <b>AND</b> number of shuttles is recorded;	distance covered in 12 minutes is recorded in metres;	results are plotted on a graph which is used to estimate / predict workload at 170 bpm;	heart rate is recorded during and after the test <b>AND</b> a formula is used to give a score;	amount of oxygen expired is measured (and compared to amount of oxygen inspired);		
4 (evaluation)	result is compared to (normative) table (to give predicted VO <sub>2</sub> max.);	distance is compared to (normative) table (to give predicted VO <sub>2</sub> max.);	score is compared to (normative) table (to give predicted VO <sub>2</sub> max.);	score is compared to (normative) table (to give predicted VO <sub>2</sub> max.);	to give true / accurate value of VO <sub>2</sub> max.;		
1(d)(ii)	4 marks for any 4 of:						<b>4</b>
<ol style="list-style-type: none"> <li>1 2 or more times per week;</li> <li>2 55–90% VO<sub>2</sub> max. <b>OR</b> 60–95% max. HR;</li> <li>3 high intensity <b>OR</b> (at least) three quarter pace;</li> <li>4 400 metres or further <b>OR</b> 45 seconds or longer;</li> <li>5 work:relief ratio 1:1 or less (time for relief less than or equal to work time);</li> <li>6 (type) running / swimming / cycling / rowing / jogging;</li> </ol>							

Question	Answer	Marks												
1(e)	<p>4 marks for 4 of: (sub-max. 2 marks for aids and sub-max. 2 marks for benefits)</p> <table border="1" data-bbox="268 383 1350 1144"> <thead> <tr> <th data-bbox="268 383 810 448">aid</th> <th data-bbox="810 383 1350 448">benefit</th> </tr> </thead> <tbody> <tr> <td data-bbox="268 448 810 613">1 fluid / water / hypotonic drinks;</td> <td data-bbox="810 448 1350 613">2 prevents dehydration <b>OR</b> reduce (core) body temperature <b>OR</b> prevents blood becoming too viscous / thickening;</td> </tr> <tr> <td data-bbox="268 613 810 813">3 isotonic drinks / salt;</td> <td data-bbox="810 613 1350 813">4 maintain / replace electrolyte levels <b>OR</b> replace lost sodium / potassium / chlorine <b>OR</b> boost blood glucose <b>OR</b> maintain hydration;</td> </tr> <tr> <td data-bbox="268 813 810 947">5 energy / sports / glucose / hypertonic drinks / gels / energy bars / glucose / carbohydrates;</td> <td data-bbox="810 813 1350 947">6 boost blood glucose / delay hitting the wall;</td> </tr> <tr> <td data-bbox="268 947 810 1043">7 fruit / nuts;</td> <td data-bbox="810 947 1350 1043">8 boost carbohydrate / protein / electrolyte / mineral stores;</td> </tr> <tr> <td data-bbox="268 1043 810 1144">9 caffeine / ginseng / ephedrine / herbal infusions;</td> <td data-bbox="810 1043 1350 1144">10 enhances fat metabolism <b>OR</b> glycogen sparing;</td> </tr> </tbody> </table>	aid	benefit	1 fluid / water / hypotonic drinks;	2 prevents dehydration <b>OR</b> reduce (core) body temperature <b>OR</b> prevents blood becoming too viscous / thickening;	3 isotonic drinks / salt;	4 maintain / replace electrolyte levels <b>OR</b> replace lost sodium / potassium / chlorine <b>OR</b> boost blood glucose <b>OR</b> maintain hydration;	5 energy / sports / glucose / hypertonic drinks / gels / energy bars / glucose / carbohydrates;	6 boost blood glucose / delay hitting the wall;	7 fruit / nuts;	8 boost carbohydrate / protein / electrolyte / mineral stores;	9 caffeine / ginseng / ephedrine / herbal infusions;	10 enhances fat metabolism <b>OR</b> glycogen sparing;	<b>4</b>
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1(f)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 impairs motor ability / coordination / balance / reaction time;</li> <li>2 causes dehydration;</li> <li>3 reduces availability of glucose <b>OR</b> may cause hypoglycaemia;</li> <li>4 reduces anxiety / physical effects of anxiety, e.g. shaking / muscle tremor;</li> <li>5 reduces sensation of pain <b>OR</b> allows performer to train / work harder;</li> <li>6 reduces body's ability to remove lactic acid;</li> <li>7 impairs decision-making / lose concentration;</li> </ol>	<b>4</b>												

Question	Answer	Marks
2(a)	3 marks for:  <i>Must use a sporting example to gain each mark, for example:</i>  1 (short) (days/weeks), e.g. improve sprint start technique; 2 (intermediate) (weeks / months), e.g. a netball team aiming to be in top three of league in mid-season; 3 (long) (months / years), e.g. achieve an Olympic qualifying time in swimming for next Olympics;	<b>3</b>
2(b)	3 marks for any 3 of:  1 behaviour changes if being observed / judged / profiled <b>OR</b> lack of ecological validity; 2 people lie <b>OR</b> give answers that put them in a good light; 3 people misunderstand questions / people find it hard to self-assess; 4 results do not relate to sporting performance; 5 people act differently in different situations, e.g. friendly vs. cup final; 6 results are subjective <b>OR</b> results can be interpreted differently by different people <b>OR</b> stereotyping; 7 answers can be influenced by performer's previous experiences of profiling; 8 answers are dependent on performer's mood / external influences on performer;	<b>3</b>
2(c)	4 marks for any 4 of:  1 motivates individuals to perform better <b>OR</b> gets the best out of performers; 2 improves confidence of performers; 3 increases cohesion in team / group; 4 sets appropriate goals <b>OR</b> shares a vision with the group <b>OR</b> makes task clear <b>OR</b> makes good decisions; 5 develops good discipline; 6 sets high standards; 7 increases enjoyment / satisfaction of individuals;	<b>4</b>
2(d)(i)	1 mark for:  1 ability to concentrate / focus (on relevant cues);	<b>1</b>

Question	Answer	Marks
2(d)(ii)	<p>3 marks for any 3 of:</p> <p>(sub-max. 1 mark if no example used; sub-max. 2 marks if only one example used)</p> <ol style="list-style-type: none"> <li>1 ensure performer is aware of which cues to focus on <b>OR</b> increase intensity of stimulus <b>OR</b> tell player to focus on one opponent;</li> <li>2 ensure performer understands their optimal arousal level for a particular skill, e.g. a shot putter knowing that high arousal will improve power;</li> <li>3 ensure performer can identify attentional style needed for a particular situation, e.g. badminton server using narrow internal style to think about how and where they are going to serve;</li> <li>4 introduce distractions into training, e.g. tennis coach playing recording of crowd noise during practice;</li> <li>5 use rewards / positive reinforcement (for good focus), e.g. prize for most focused netballer during practice;</li> <li>6 use goal-setting, e.g. netball shooter must score ten consecutive shots;</li> <li>7 use mental rehearsal / imagery / relaxation techniques, e.g. rehearse gym routine;</li> </ol>	<b>3</b>
2(d)(iii)	<p>2 marks for any 2 of:</p> <ol style="list-style-type: none"> <li>1 at low / under arousal attentional field is wide <b>OR</b> focus is on a lot of cues <b>OR</b> at low arousal there is a lack of focus;</li> <li>2 as arousal increases attentional field narrows <b>OR</b> focus is more likely to be on relevant cues <b>OR</b> perceptual narrowing occurs;</li> <li>3 at optimal arousal attention / focus is only on relevant cues <b>OR</b> cue utilisation occurs;</li> <li>4 at high / over arousal attention / focus is only on a few cues <b>OR</b> relevant cues may be missed <b>OR</b> hyper vigilance / blind panic occurs;</li> </ol>	<b>2</b>
2(e)(i)	<p>1 mark for:</p> <ol style="list-style-type: none"> <li>1 negative aspect of stress <b>OR</b> negative emotional feelings <b>OR</b> worry due to fear of failure;</li> </ol>	<b>1</b>
2(e)(ii)	<p>4 marks for any 4 of:</p> <ol style="list-style-type: none"> <li>1 importance of the event / competition / pressure to win / size of crowd;</li> <li>2 fear of failure / losing / performing badly / letting others down / lack of preparation;</li> <li>3 fear of evaluation / embarrassment;</li> <li>4 fear of injury;</li> <li>5 fear of the unknown;</li> <li>6 quality of opposition;</li> <li>7 unfamiliar environment / kit / equipment;</li> <li>8 poor officiating;</li> <li>9 interpretation of (somatic) effects of arousal;</li> <li>10 innate / trait / personality;</li> </ol>	<b>4</b>

Question	Answer	Marks
2(f)(i)	5 marks for any 5 of: 1 aggression is a trait / natural behaviour (that builds up in our body); 2 innate characteristic / genetic / inherited; 3 stable / enduring characteristic; 4 aggression needs a release (or will be dangerous to well-being); 5 ... (known as) catharsis; 6 sport can provide an acceptable way to release of aggression; 7 reference to death instinct / life instinct (Freud, Lorenz);	<b>5</b>
2(f)(ii)	4 marks for any 4 of:  <i>Maximum 3 marks if no sporting example used.</i>  1 (definition) forceful behaviour that is within laws of activity; 2 (also known as) assertion <b>OR</b> instrumental aggression; 3 an example, e.g. strong tackle in rugby; 4 goal-directed behaviour <b>OR</b> behaviour aimed at achieving success <b>OR</b> opponents will also use it; 5 legal / legitimate use of verbal / physical force; 6 no intention to harm / injure opponent; 7 intimidates / distracts / 'psyches out' opponent <b>OR</b> reduces performance of opponent;	<b>4</b>

Question	Answer	Marks
3(a)	6 marks for any 6 of: 1 held every four years; 2 festival of sport <b>OR</b> sporting and cultural event; 3 opening ceremony; 4 oath taken by all athletes; 5 events (from ancient OG) were adopted in early modern OG <b>OR</b> athletic events / wrestling; 6 heralds proclaiming ancient OG were adapted to Olympic torch to publicise modern OG; 7 ideals of peace and harmony between nations promoted; 8 fair-play ideals promoted; 9 women not allowed to take part (in early modern OG); 10 victory ceremonies <b>OR</b> medals replaced olive wreaths;	<b>6</b>



Question	Answer	Marks
3(b)	5 marks for any 5 of:  1 promotes (ideals of) Olympism / fair play; 2 in charge of bidding process <b>OR</b> selects host city <b>OR</b> ensures Olympic Games take place (every 4 years); 3 decides which sports are included; 4 encourages education of youth through sport / increase participation in sport / cultural development; 5 act against discrimination / inequality in sport; 6 lead fight against doping in sport; 7 protect health / welfare of athletes; 8 protect the Olympic movement from political / commercial abuse; 9 support activities of International Olympic Academy; 10 promote positive legacy; 11 show concern for environmental issues;	5
3(c)	4 marks for any 4 of:  <i>Maximum of 3 marks if Israel / Israeli not identified.</i>  1 by Palestinian terrorists; 2 ... on Israeli athletes; 3 ... in the Olympic village; 4 (Israeli) athletes killed (during attack); 5 (Israeli) athletes taken hostage; 6 during a rescue attempt... (by German police at Munich airport); 7 ...(all) the (Israeli) athletes / hostages were killed (by the terrorists); 8 terrorists were killed or (German) policeman killed; 9 Olympic Games continued; 10 Israel / other countries withdrew from Games;	4
3(d)	4 marks for 4 of:  1 Berlin (1936) used to promote Aryan / racial supremacy <b>OR</b> strength of Nazi Germany; 2 East Germany / Soviet Union / China medal success used to promote communism; 3 boycott by nations objecting to apartheid in South Africa; 4 boycott by many countries objecting to invasion of Afghanistan by Soviet Union; 5 LA (1984) / Atlanta (1996) / USA promote Western ideals / capitalism / americanisation; 6 Montreal (1976) China put pressure on IOC to refuse Taiwan entry <b>OR</b> non-recognition of Taiwan as a country by China; 7 (2008) Beijing – used to enhance China’s cultural and economic standing in the world;	4

Question	Answer	Marks
3(e)	3 marks for:  1 (sponsorship) support for an athlete by a private body / company / commercial organisation; 2 (grant) support from a public / government body (e.g. lottery); 3 (bursary) support for an athlete to gain access to elite facilities / university / centre of excellence in sport;	<b>3</b>
3(f)	4 marks for any 4 of:  1 taken by athletes representing each / every country; 2 taken by officials from each / every country; 3 to respect / abide by rules; 4 without doping / drugs (first time this had been included in the oath); 5 in spirit of sportsmanship / fair play; 6 for the glory of sport; 7 and the honour of the team; 8 (oath taken) while holding (a corner of) Olympic flag; 9 (usually) in language of the host city;	<b>4</b>
3(g)	4 marks for any 4 of:  1 increasing cost of hosting the Olympic Games; 2 need to outbid other potential cities <b>OR</b> outdo previous Olympic Games; 3 cost of building world-class facilities / transport infrastructure; 4 government funding / support for projects; 5 backdrop of economic recession / reduced funding for other schemes; 6 massive sponsorship deals / merchandising / ticket prices; 7 ...and broadcasting rights fund the Games;	<b>4</b>