

Mark Scheme

Summer 2016

GCE Physical Education (6PE03/01)  
Unit 3:

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## General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- For questions worth more than one mark, the answer column shows how partial credit can be allocated. This has been done by the inclusion of part marks eg (1).
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

## Quality of Written Communication

Questions which involve the writing of continuous prose will expect candidates to:

- Write legibly, with accurate spelling, grammar and punctuation in order to make the meaning clear
- Select and use a form and style of writing appropriate to purpose and to complex subject matter
- Organise information clearly and coherently, using specialist vocabulary when appropriate.

Question Number	Example answer	Guidance	Mark
1a	<p><b>1 mark for each of the following points up to a max of 3 e.g.</b></p> <p><b>Advantages</b></p> <ol style="list-style-type: none"> <li>1. Increases PC stores in the muscle/ATP-PC stores</li> <li>2. Increase muscle mass/hypertrophy</li> <li>3. Good for high intensity anaerobic activity e.g. good for cycling sprints/good for a relevant specific sport</li> <li>4. Boosts levels of amino acids</li> <li>5. Helps athletes maintain energy levels</li> <li>6. Enhances ATP-PC energy pathway</li> <li>7. Can remain in ATP-PC system for longer/remain high intensity for longer/delays fatigue</li> <li>8. Delays lactate system</li> <li>9. Improved power/strength</li> <li>10. Can speed up recovery rate</li> </ol> <p>Any other acceptable correct response</p>	<p><b>Make sure point 1 refers to stores of energy and not supply of energy. Supply relates to point 6 or 7 and stores relate to point 1.</b></p>	(3)
1b	<p>1 mark for each of the following points up to a max of 3 e.g.</p> <p><b>Disadvantages</b></p> <ol style="list-style-type: none"> <li>1. No significant effect on aerobic endurance e.g. not good for long distance swimming /not good for a relevant specific sport</li> <li>2. Can be associated with weight gain /Can make you feel bloated/feel heavier/side effects such as water retention</li> <li>3. Don't know long term effects</li> <li>4. Banned in France/some countries</li> <li>5. Expensive</li> <li>6. Conflicting instructions on when to take it</li> <li>7. Can take time to see effects</li> </ol>	<p>Side effects on its own is too vague – needs an example to support this.</p>	(3)

	<p>8. Need to train alongside it  9. Risk of contamination  10. There is a limit as to how much your body can store</p> <p>Any other acceptable correct response</p>		
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Question Number	Answer	Guidance	Mark
2a	<p><b>1 mark for each of the following points up to a max of two e.g.</b></p> <p>A natural reaction to a <b>threat</b> in the environment (1) part of our preparation for flight or fight (1)  Or  An emotional response brought <u>about as a result of</u> increased arousal or stress (1) to the point where security / control of the outcome is beginning to be doubted (1)  1 mark can be awarded for a suitable example but only if a correct definition with it.  Any other correct definition, candidates do not have to use the exact wording of above examples</p>	<p>A result of arousal and not that anxiety is arousal.  Examples only score <u>with</u> a correct definition.  The stress example can be 'big event' e.g. cup final?  However, under threats, worrying about a poor performance is too vague.</p> <p><b>No marks for cognitive or somatic as these are types and not a definition.  Two separate points need to be made for the two marks.</b></p>	(2)

Question Number	Answer	Guidance	Mark
<b>2bi</b>	<p><b>1 mark for each of the following points up to a max of three e.g.</b></p> <ol style="list-style-type: none"> <li>1.State anxiety is situation specific</li> <li>2.The situation causes an increase in arousal /anxiety</li> <li>3.Which can have an effect on performance e.g. choking/performance level drops or increase</li> <li>4 suitable example e.g. taking a penalty/loud crowd</li> </ol> <p>Any other acceptable correct response</p>	<p>Example must be a state anxiety example to score and not trait. Example must follow a correct statement. Example cannot be awarded alone.</p>	(3)
<b>2bii</b>	<p><b>1 mark for each of the following points up to a max of three e.g.</b></p> <ol style="list-style-type: none"> <li>1.Trait anxiety is a characteristic of personality (always anxious)</li> <li>2. It is relatively stable (permanent)/not affected by situation</li> <li>3. It can effect performance positively or negatively</li> <li>4. Suitable example e.g. Usain Bolt being very relaxed</li> <li>5. general and enduring feeling of apprehension.</li> </ol> <p>Any other acceptable correct response</p>	<p>Example must be a trait example to score and not state. Because this is an explain question the example must follow a correct statement. Example cannot be awarded alone. Some candidates are using performance examples which are state based so will not score.</p>	(3)

Question Number	Answer	Guidance	Mark
<b>2biii</b>	<p><b>1 mark maximum for the identification of a successful strategy e.g.</b></p> <ol style="list-style-type: none"> <li>1. selective attention /thought redirection/blocking out</li> <li>2. visualisation /imagery/mental rehearsal</li> <li>3. simulation training e.g. recreating crowd noise/train in front of crowd/cue utilisation</li> <li>4. relaxation techniques e.g. listen to music/breathing techniques or other similar/centreing</li> <li>5. self-talk</li> <li>6. pre-game routines /rituals</li> </ol> <p><b>Up to two marks for each justification:</b></p> <ol style="list-style-type: none"> <li>7 to help cut out the negative influence of others</li> <li>8 to help focus on the task /concentration</li> <li>9 to ensure essential skills are over learned/the dominant response is successful</li> <li>10.become familiar with potential distractions</li> <li>11.to enable greater relaxation/control anxiety /control arousal</li> <li>12. to increase confidence/motivation</li> </ol>	<p>Sub max two for strategies Justification must be appropriate but can be replicated under two different examples if they are accurate.</p> <p><b>NO</b> marks for describing the technique. Marks only awarded for impact on performance.</p>	<b>(6)</b>

Question r	Answer	Guidance	Mark
3a	<p><b>This question has two parts:</b></p> <ul style="list-style-type: none"> <li>• <b>The effects of dehydration on the body with the maximum of five marks available.</b></li> <li>• <b>The affects on sports performance, candidates can be awarded marks for generic statements sub max 5 in this section.</b></li> </ul> <p><b>Effects of dehydration</b>  <b>The maximum you can get from this sub section is five marks:</b></p> <ol style="list-style-type: none"> <li>1. as water is lost the volume of plasma in the blood will decrease</li> <li>2. increase in blood viscosity</li> <li>3. the concentration of remaining salt increases /sodium and electrolyte loss through sweat</li> <li>4. decrease in blood pressure</li> <li>5. decrease tissue fluid formation / redistribution of fluid to other compartments</li> <li>6. increased thirst</li> <li>7. increased heart rate</li> <li>8. retention of body heat/unable to thermoregulate</li> <li>9. loss of concentration/judgement</li> <li>10.dizziness/headaches</li> <li>11.nausea</li> <li>12. Suffer from cramps</li> </ol> <p><b>Effects on performance</b>  <b>The maximum you can get from the sub section is five marks:</b></p> <ol style="list-style-type: none"> <li>13.Decline in performance</li> <li>14.Get tired more quickly/fatigue</li> <li>15.Decline in mental ability/decision making skills</li> <li>16.More likely to be injured</li> <li>17.Suffer from heat illness e.g. stroke/exhaustion/cramps/syncope/have to stop performance</li> </ol>	<p>Guidance:  First column in the table must refer to <u>body weight loss</u>.If just a percentage it cannot be awarded.  Watch out for the submax.  Point 9 refers to loss in concentration but 15 must have the link to performance.  Heart working harder is too vague. Heart working faster is OK for increased heart rate.</p>	(8)



	18.– 22. Refers to each point in the table			
	Body weight lost as sweat (%)	Performance effect		
	1	Loss of 5%		
	2	Loss of 10%		
	4	Loss of 25%		
	5	Potential failure to complete		
	>5 (greater than 5)	Potentially fatal		

Question Number	Answer	Guidance	Mark
<b>3bi</b>	<p>1) External substance/device/influence (can be mechanical, pharmacological, physiological, nutritional or psychological)</p> <p>2) that can <b>enhance</b> performance /give an advantage/recover more quickly</p> <p>Any other correct definition, candidates do not have to use the exact wording of above examples</p>	<p>Be careful that it is about increasing performance and not just maintaining it. Don't award marks for examples as we are asking for a definition.</p>	<b>(2)</b>

Question Number	Answer	Guidance	Mark
3bii	<p><b>Advantages (Submax 3)</b>  <u>Model Answer Advantages:</u>  Ice baths are used to speed up recovery (1) <b>OR</b> enabling faster return to training and competition (1). This is achieved by:</p> <ol style="list-style-type: none"> <li>1 Blood vessels constrict which reduces muscle blood flow.</li> <li>2 Reduced muscle blood flow decreases inflammation.</li> <li>3 Decrease in inflammation reduces muscle soreness.</li> <li>4 Reduced muscle soreness speeds up recovery time.</li> <li>5. After about 6 mins there is an increase in blood flow.</li> <li>6 This delayed increase in blood flow helps remove waste products/toxins.</li> </ol> <p><b>Disadvantages (submax 3)</b>  <u>Model answer disadvantages:</u></p> <ol style="list-style-type: none"> <li>7. Over extended duration can lead to excessive drops in muscle temperature/Excessive drop in muscle temperature can lead to muscle and tissue stiffness /tense (1) hypothermia (1).</li> <li>8. not everybody is equally affected by ice baths. The cold will not penetrate as deeply into the muscle for people with more body fat.</li> <li>9. There are a number of practical issues such as availability of baths especially with teams (1)/supply of ice (1)/expense of purchasing equipment and/or ice (1) ease of transporting equipment (1) or ice/timing/inconvenience (1)</li> <li>10. The rapid change in temperature may also create some side effects such as Risk</li> </ol>	<p>3 marks for advantages section and 3 marks for disadvantages section.</p> <p>From the top section of advantages they can only have one advantage mark. The second two marks must come from the bulleted numbers below it. They cannot have all three marks from the bulleted numbers alone.</p> <p>The model answer for advantages shows the sequence with which events take place. Candidates may not always make all of the points within a statement or necessarily in the right order. Credit must be given for linked statements.</p> <p>Blood flow increase can only be awarded where reference is made to this being a delayed response.</p> <p>Any three points from disadvantages section can score marks. Candidates can score multiple marks on any given point i.e. point 9 could result in 3 marks.</p>	(6)

	<p>of shock/breathing difficulties (1) ice burn (1)</p> <p>11. Some athletes do not like using it because it is unpleasant</p>		
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Question Number	Answer	Guidance	Mark										
4	<p>If structural part is incorrect then no marks for associated functional benefit.</p> <p>One mark for each structural adaptation (see table below) to maximum of three.</p> <p>Two marks for each for each functional benefit, to a maximum of six. One mark for naming it and one mark for explaining it. Allow a worded explanation e.g. amount of blood ejected per beat is acceptable instead of the words stroke volume. Must refer to CV system e.g. not muscle hypertrophy must be cardiac referenced.</p> <p><b>Functional benefits</b></p> <ol style="list-style-type: none"> <li>1. Increased strength of ( ventricular) contractions</li> <li>2. Likelihood of bradycardia or lower heart rate during exercise</li> <li>3. Increased stroke volume</li> <li>4. Increased cardiac output</li> <li>5. Increased venous return</li> <li>6. Increase in VO2 max</li> <li>7. Increased capacity to utilise greater percentage of VO2 max</li> <li>8. Increased capacity to utilise tolerate and transport lactic acid</li> <li>9. Increased oxygen delivery to muscles</li> <li>10. Increased gas exchange at the working muscle.</li> <li>11. Increased end diastolic volume</li> </ol> <table border="1"> <thead> <tr> <th>Structural adaptation</th> <th>Functional benefit</th> </tr> </thead> <tbody> <tr> <td>1. (Increased capacity for ) <b>cardiac</b>/heart hypertrophy</td> <td>2, 3, 4, 5, 6</td> </tr> <tr> <td>2. Increased thickness to ventricular myocardium</td> <td>1, 3 , 4 ,11</td> </tr> <tr> <td>3. Increase in red blood cell formation / production / number/increased haemoglobin</td> <td>6, 7, 10</td> </tr> <tr> <td>4. Increase in capillaries / vascularisation</td> <td>6, 7, 8, 9, 10</td> </tr> </tbody> </table>	Structural adaptation	Functional benefit	1. (Increased capacity for ) <b>cardiac</b> /heart hypertrophy	2, 3, 4, 5, 6	2. Increased thickness to ventricular myocardium	1, 3 , 4 ,11	3. Increase in red blood cell formation / production / number/increased haemoglobin	6, 7, 10	4. Increase in capillaries / vascularisation	6, 7, 8, 9, 10		(9)
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Question Number	Answer	Guidance	Mark
5	<p><b>1 mark for each point to maximum of five e.g.</b></p> <ol style="list-style-type: none"> <li>1. some athletes don't like it</li> <li>2. take athletes from their home environment</li> <li>3. athletes can be away from their coach/training disrupted</li> <li>4. can have competitors training together and this can be detrimental/motivational/can lead to overtraining</li> <li>5. can mean athletes have a different diet/too much food</li> <li>6. for some athletes who work this can impact on the money they earn</li> <li>7. local media cannot access when in a national environment</li> <li>8. access to own doctor can be more difficult</li> <li>9. Hype and build up can increase pressure (e.g. more media attention)</li> <li>10. May not get on with other athletes/poor cohesion in team</li> </ol>		(5)

Question Number	Indicative Content	Mark
*6	<p>A discussion to include some of the following points:</p> <ol style="list-style-type: none"> <li>1. analysis of own technique</li> <li>2. analysis of the perfect technique</li> <li>3. comparability of the two</li> <li>4. refinement of technique as a result</li> <li>5. observational feedback</li> <li>6. use of technology</li> <li>7. video analysis computer software such as Dartfish and Prozone</li> </ol> <p>However:</p> <ul style="list-style-type: none"> <li>• Loss of individuality/trying to make everyone the same as perfect model</li> <li>• The perfect technique may not be right for all</li> <li>• Coaches may differ on what they consider to be the perfect technique</li> <li>• The perfect technique may change over time and coaches may not be up to date</li> <li>• Coaches may not be able to demonstrate</li> <li>• May not be possible if the technique is well learned</li> <li>• If changed quickly there can be a drop in performance</li> <li>• Not all will have access to technology</li> <li>• Technology dependence</li> <li>• Refining technique often takes place in training and how it is remembered and explained will impact on the competition.</li> <li>• Can easily be forgotten under competition circumstances.</li> </ul> <p>Other valid points to be credited where appropriate.</p>	(20)

<b>Level I</b>	<b>0</b>	No rewardable content
<b>1</b>	<b>1 – 5</b>	<ul style="list-style-type: none"> <li>• A limited explanation that includes descriptive comment and/or lists, with minimal or no detail.</li> <li>• Subject specific terminology is not used and/or inappropriately used</li> <li>• The response is mostly appropriate; though include many factual inaccuracies and irrelevancies.</li> <li>• The response is poorly structured with frequent errors in spelling, punctuation and grammar.</li> </ul> <p>Answers in this band will be technology based and not specifically about refining technique, or may be very short any only mention dart fish or similar.</p>
<b>2</b>	<b>6 – 10</b>	<ul style="list-style-type: none"> <li>• A basic explanation that includes mostly descriptive comment, and contain some detail.</li> <li>• Subject specific terminology is sometimes used, though there may be some inaccuracies in its application.</li> <li>• Responses are appropriate; though include some factual inaccuracies and/or irrelevancies.</li> <li>• The response has a basic structure with frequent errors in spelling, punctuation and grammar.</li> </ul> <p>Answers in this band will be descriptive about technology and refining technique e.g. dart fish, force platforms etc but there will be no negative side. Will reference more than one technology to refine performance. May think they have done a counter argument but this will be technology based and not refining technique e.g. cost to a country, taking away natural talent etc! More types of technology that refine performance will take this further up in the band.</p>
<b>3</b>	<b>11 – 15</b>	<ul style="list-style-type: none"> <li>• A good explanation that includes some detail.</li> <li>• Subject specific terminology is consistently used, though there may be some inaccuracies in its application.</li> <li>• Responses are relevant and appropriate.</li> <li>• The response has a sound structure with some errors in spelling, punctuation and grammar.</li> </ul> <p>11-15 Answers in this band will focus on both the positive <b>and</b> negative.</p>
<b>4</b>	<b>16 - 20</b>	<ul style="list-style-type: none"> <li>• A comprehensive explanation that is coherent and includes a full detail.</li> <li>• Subject specific terminology is used with minimal error in its application.</li> <li>• Responses are insightful, realistic and current.</li> <li>• The response has clear and effective structure with minimal error in spelling, punctuation and grammar.</li> </ul>

Question Number	Indicative Content	Mark
*7	<p>A discussion to include some of the following points:</p> <ol style="list-style-type: none"> <li>1. Historical development of centres of excellence to include</li> <li>2. Centralised approach starting in East Germany post the SWW and the impact of this</li> <li>3. Decentralised approach developed such as in the US</li> <li>4. Replicated globally</li> <li>5. Best coaches</li> <li>6. Best facilities</li> <li>7. All in one place</li> <li>8. Control of external influences</li> <li>9. Allows best athletes to train together</li> <li>10. Athletes aim to get their for status</li> <li>11. Athletes aim to get to them as they are often linked with funding</li> <li>12. Able to capture potential athletes early</li> <li>13. Don't support all athletes</li> <li>14. Not useful in very large countries</li> <li>15. Not useful where travel is difficult</li> <li>16. Takes away the element of choice for the athlete</li> <li>17. The centre of excellence can become dominant</li> <li>18. Can damage grass roots sport</li> <li>19. Coaches not at the centre of excellence can feel alienated</li> <li>20. Can miss late developers</li> <li>21. Can be divisive</li> <li>22. Impact of being away from home</li> <li>23. Some athletes feel uncomfortable living with other athletes</li> <li>24. Can be overpowering for athletes to be doing just this</li> </ol> <p>Other valid points to be credited where appropriate.</p>	(20)



<b>Level I</b>	<b>0</b>	No rewardable content
<b>1</b>	<b>1 – 5</b>	<ul style="list-style-type: none"> <li>• A limited explanation that includes descriptive comment and/or lists, with minimal or no detail.</li> <li>• Subject specific terminology is not used and/or inappropriately used</li> <li>• The response is mostly appropriate; though include many factual inaccuracies and irrelevancies.</li> <li>• The response is poorly structured with frequent errors in spelling, punctuation and grammar.</li> </ul> <p>Will not consider enhancing performance at all.</p>
<b>2</b>	<b>6 – 10</b>	<ul style="list-style-type: none"> <li>• A basic explanation that includes mostly descriptive comment, and contain some detail.</li> <li>• Subject specific terminology is sometimes used, though there may be some inaccuracies in its application.</li> <li>• Responses are appropriate; though include some factual inaccuracies and/or irrelevancies.</li> <li>• The response has a basic structure with frequent errors in spelling, punctuation and grammar.</li> </ul> <p>Will only superficially answer the question about how c of e enhance performance – likely to be too focussed on history and development /imbalanced between the two</p>
<b>3</b>	<b>11 – 15</b>	<ul style="list-style-type: none"> <li>• A good explanation that includes some detail.</li> <li>• Subject specific terminology is consistently used, though there may be some inaccuracies in its application.</li> <li>• Responses are relevant and appropriate.</li> <li>• The response has a sound structure with some errors in spelling, punctuation and grammar.</li> </ul> <p>Band 3 essay has to answer the question about how C of E enhance performance in band 3 there should be some reference to history and development. This band may attempt a basic counter argument.</p> <ul style="list-style-type: none"> <li>•</li> </ul>
<b>4</b>	<b>16 - 20</b>	<ul style="list-style-type: none"> <li>• A comprehensive explanation that is coherent and includes a full detail.</li> <li>• Subject specific terminology is used with minimal error in its application.</li> <li>• Responses are insightful, realistic and current.</li> <li>• The response has clear and effective structure with minimal error in spelling, punctuation and grammar.</li> </ul> <p>Band 4 responses will have a full and detailed discussion of advantages, disadvantages of Centres of excellence and how performance is enhanced. Candidates should refer to history and development supported by a range of examples such as AIS, East Germany, UK etc. This band will definitely answer the question how is a c of E enhancing performance but will fully encompass all elements.</p>