

# Mark Scheme (Results)

Summer 2015

Pearson Edexcel GCE  
in Physical Education (6PE03/01)  
Unit 3: Preparation for Optimum  
Sports Performance

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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.

Question Number	Acceptable responses	Mark
<b>1a</b>	Up to 1 mark for each of the following points up to a maximum of three for an explanation of carbo-loading. <ol style="list-style-type: none"><li>1) Manipulating the diet</li><li>2) By <b>increasing</b> consumption of carbohydrates</li><li>3) To maximize glycogen stores/energy/fuel</li><li>4) In the week (few days) prior to competition</li><li>5) Depletion of carbohydrate initially so the body holds onto more</li></ol>	<b>(3)</b>

Question Number	Acceptable responses	Mark
<b>1b</b>	<p>Should be a discussion covering both advantages and disadvantages up to 6 marks.</p> <p>Advantages :</p> <ol style="list-style-type: none"><li>1) Increase muscle glycogen/carbohydrate stores/more stored energy</li><li>2) Performance is sustained for longer/stay in aerobic system for longer/won't fatigue as easily</li><li>3) Don't move to fat stores as quickly</li><li>4) Don't have to supplement as quickly</li></ol> <p>Disadvantages :</p> <ol style="list-style-type: none"><li>1) Can lead to weight gain/water retention</li><li>2) Means you may feel bloated or lethargic.</li><li>3) Excess is stored as fat</li><li>4) Limits training potential in depletion phase (due to less glycogen)</li></ol>	<b>(6)</b>

Question Number	Acceptable responses	Mark
<b>2a</b>	<p>1 mark for each of the following points up to a maximum of <b>two</b> for an explanation of mental rehearsal.</p> <ol style="list-style-type: none"><li>1) Thinking through the different parts of a competition</li><li>2) Thinking how you will respond to different situation or tactics</li><li>3) Doing it <b>before</b> the event</li><li>4) Use of imagery or visualization/thinking through set of movements in your mind</li><li>5) Use of past experience/successful to run through an event</li></ol>	<b>(2)</b>

Question Number	Acceptable responses	Mark
<b>2b</b>	<p data-bbox="629 148 1738 180">Explain how mental rehearsal affects sports performance – up to 4 marks.</p> <ol data-bbox="678 233 1715 839" style="list-style-type: none"><li data-bbox="678 233 1317 264">1) Allows you to produce strategies/tactics</li><li data-bbox="678 272 1339 304">2) Allows you to react to different situations</li><li data-bbox="678 312 1473 344">3) Reduces anxiety/calms you (helps control anxiety)</li><li data-bbox="678 352 1308 384">4) Can lead to an increase in performance</li><li data-bbox="678 392 1223 424">5) Increases confidence/self efficacy</li><li data-bbox="678 432 1149 464">6) Can increase/reduce arousal</li><li data-bbox="678 472 1137 504">7) Can help control aggression</li><li data-bbox="678 512 1285 544">8) Can help block out distractions (zone)</li><li data-bbox="678 552 1536 584">9) Can focus attention (selective attention)/concentration</li><li data-bbox="678 592 1715 671">10) If event is quick or dangerous and no time to think during it can help you prepare</li><li data-bbox="678 679 1688 759">11) If athlete cannot rehearse for real e.g. injury/not at venue they can still prepare</li><li data-bbox="678 767 1084 799">12) Can motivate you</li><li data-bbox="678 807 1447 839">13) Dominant response is more likely to occur</li></ol>	<b>(4)</b>

Question Number	Acceptable responses	Mark
<b>3</b>	<p data-bbox="454 320 1839 347">Up to 6 marks for explanation of how fuel depletion causes fatigue during sports performance</p> <ol data-bbox="501 480 1447 994" style="list-style-type: none"><li data-bbox="501 480 1308 507">1) PC is depleted by maximum/high intensity exercise</li><li data-bbox="501 533 1039 560">2) PC is used up after 6-10 seconds</li><li data-bbox="501 585 1447 612">3) When PC stores are used up sports performance slows down</li><li data-bbox="501 638 1406 665">4) ATP cannot be resynthesized fast enough/at required rate</li><li data-bbox="501 691 1397 718">5) Suitable example e.g. sprinter slows at end of 100m race</li><li data-bbox="501 743 1344 770">6) Muscle glycogen is used aerobically and anaerobically</li><li data-bbox="501 796 1048 823">7) Muscle glycogen lasts 90 minutes</li><li data-bbox="501 849 1272 876">8) When glycogen runs out athletes have to use fat</li><li data-bbox="501 901 1075 928">9) Performance intensity will decrease</li><li data-bbox="501 954 1417 981">10) Suitable example e.g. hitting the wall in a marathon</li></ol>	<b>(6)</b>



Question Number	Acceptable responses	Mark																										
4	<p>Candidates can score 1 mark for adaptation and 1 mark for a link to how it improves performance.</p> <table border="1" data-bbox="360 339 1942 1235"> <thead> <tr> <th data-bbox="360 339 1171 435">Adaptation</th> <th data-bbox="1171 339 1942 435">How it improves performance</th> </tr> </thead> <tbody> <tr> <td data-bbox="360 435 1171 520">1) Increase in PC stores</td> <td data-bbox="1171 435 1942 520">2) Will improve high intensity performance/sprint for longer</td> </tr> <tr> <td data-bbox="360 520 1171 604">3) Increased glycogen stores</td> <td data-bbox="1171 520 1942 604">4) More potential energy so can last longer in the energy system</td> </tr> <tr> <td data-bbox="360 604 1171 647">5) More anaerobic enzymes</td> <td data-bbox="1171 604 1942 647">6) Improves energy produced</td> </tr> <tr> <td data-bbox="360 647 1171 691">7) Increased rate of glycolysis</td> <td data-bbox="1171 647 1942 691">8) Can maintain sprint speed for longer</td> </tr> <tr> <td data-bbox="360 691 1171 734">9) Greater lactic acid tolerance</td> <td data-bbox="1171 691 1942 734">10) Can delay fatigue</td> </tr> <tr> <td data-bbox="360 734 1171 818">11) Hypertrophy (of muscles)</td> <td data-bbox="1171 734 1942 818">12) Will increase strength and force/power exerted</td> </tr> <tr> <td data-bbox="360 818 1171 903">13) Increase strength of tendons and ligaments</td> <td data-bbox="1171 818 1942 903">14) Increased joint stability/ better able to use force</td> </tr> <tr> <td data-bbox="360 903 1171 987">15) Type 1 fibres will take on characteristics of type 2 and 11b of 11a</td> <td data-bbox="1171 903 1942 987">16) Increases speed /more force</td> </tr> <tr> <td data-bbox="360 987 1171 1072">17) increased speed of motor neural firing</td> <td data-bbox="1171 987 1942 1072">18) recruits muscle fibres faster/increased reactions/increased speed</td> </tr> <tr> <td data-bbox="360 1072 1171 1157">19) Increased lactate threshold</td> <td data-bbox="1171 1072 1942 1157">20) Able to reach <b>a higher intensity</b> before fatigue</td> </tr> <tr> <td data-bbox="360 1157 1171 1200">21) Increase muscle elasticity</td> <td data-bbox="1171 1157 1942 1200">22) Increased power</td> </tr> <tr> <td data-bbox="360 1200 1171 1235">23) Increase numbers of fibres recruited</td> <td data-bbox="1171 1200 1942 1235">24) Increased strength or power</td> </tr> </tbody> </table>	Adaptation	How it improves performance	1) Increase in PC stores	2) Will improve high intensity performance/sprint for longer	3) Increased glycogen stores	4) More potential energy so can last longer in the energy system	5) More anaerobic enzymes	6) Improves energy produced	7) Increased rate of glycolysis	8) Can maintain sprint speed for longer	9) Greater lactic acid tolerance	10) Can delay fatigue	11) Hypertrophy (of muscles)	12) Will increase strength and force/power exerted	13) Increase strength of tendons and ligaments	14) Increased joint stability/ better able to use force	15) Type 1 fibres will take on characteristics of type 2 and 11b of 11a	16) Increases speed /more force	17) increased speed of motor neural firing	18) recruits muscle fibres faster/increased reactions/increased speed	19) Increased lactate threshold	20) Able to reach <b>a higher intensity</b> before fatigue	21) Increase muscle elasticity	22) Increased power	23) Increase numbers of fibres recruited	24) Increased strength or power	(6)
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Question Number	Acceptable responses	Mark
5.	<p>Up to six marks can be awarded for points made:</p> <ol style="list-style-type: none"><li>1) Can identify strengths and weaknesses</li><li>2) SMART targets explained</li><li>3) Can be used to plan psychological training</li><li>4) Is essential to measure overall performance so goals can be achieved/check progress</li><li>5) To put into place strategies</li><li>6) Engages and motivates athletes/(confidence/self efficacy)</li><li>7) Can be demotivating if goals too hard (lose confidence)/under pressure</li><li>8) If goals too hard athletes can learn to deal with failure</li><li>9) To stayed focused</li></ol>	<b>(6)</b>

Question Number	Acceptable responses	Mark
<b>6a</b>	1 mark per point made  1) Australia did not do well in Montreal/1976/no gold medal 2) Led to comparison to East German model/other countries doing better/copying their model 3) Change was needed /current system not working/needed to re-evaluate 4) Wanted international recognition 5) Public disappointment 6) Government displeasure	<b>(3)</b>

Question Number	Acceptable responses	Mark
<b>6b</b>	<ol style="list-style-type: none"><li>1) Centralised system/government controlled</li><li>2) state funded</li><li>3) AIS/centre of excellence</li><li>4) Satellite institutes at state level /decentralised</li><li>5) Sports Search – talent ID programme</li><li>6) Sports Science available to all athletes/medical care</li><li>7) ACE career programme to support athletes</li><li>8) World class facilities/coaches/coach education</li><li>9) <b>Targeted specific sports</b> e.g. rowing (based on biometric testing)</li><li>10) Scholarships to top athletes</li><li>11) Clear pathways from grass roots to state to elite</li></ol>	<b>(6)</b>

Question Number	Acceptable responses	Mark
7	<p>1 mark for each point up to a maximum of 8. Points can be from below but <b>must link to performance.</b></p> <ol style="list-style-type: none"> <li>1)Funding of sports changed after poor results in 1996 (Atlanta)</li> <li>2)Before this athletes self funded or limited grant aid</li> <li>3)After this strict performance criteria were awarded professional salaries to train and compete</li> <li>4)Different levels of performance awarded different salaries</li> <li>5)Olympic medalists received approx. £30,000/ enabled full time training</li> <li>6)Team GB got best ever results in London 2012/performance has improved</li> <li>7)NGBs also have strict criteria for central funding</li> <li>8)Some sports have had big increases</li> <li>9)Some sports have had funding cuts e.g. water polo/volleyball</li> <li>10)Funding can increase participation or reduce the interest in the sport</li> <li>11)Some sports are self funded</li> <li>12)Lottery funding helps a lot of athletes to train full time/travel and train elsewhere</li> <li>13)Funding has been targeted at betting base of pyramid larger (grass roots) to increase talent base and widen the top</li> <li>14)World class pathway to fund performance</li> <li>15)Athlete personal awards allow more professional athletes</li> <li>16)UKSI has centralised funding – but has hub centres</li> <li>17)Sponsorship has increased popularity of some sports and therefore some sports have had more success/or allowed athletes to train more/paid more</li> <li>18)Prize money/rewards can provide more incentive to do well</li> <li>19)Funding has gone into sports science and facilities to allow a more professional approach</li> <li>20)UK sport gives money to teams with high potential</li> <li>21)Increase in privately owned clubs to allow greater decision making to clubs</li> </ol>	(8)

Question Number	Indicative Content	Mark
QWC	<p data-bbox="248 217 443 252"><b>*8</b></p> <p data-bbox="465 244 1928 320">The indicative content below is a guide to the types of responses used. This should not be viewed as an exclusive list of responses.</p> <p data-bbox="465 328 1928 405">These need to be marked in conjunction with the level descriptors provided in order to achieve the marks.</p> <ul data-bbox="504 456 1944 1123" style="list-style-type: none"> <li>• Performance profiling can be used in all areas of sport science</li> <li>• It allows athletes to identify their strengths and weaknesses in all aspects of performance</li> <li>• Enables a strategy to be developed</li> <li>• Often presented as a 'wagon wheel' or 'spider webs'</li> <li>• Enables setting of specific target/smart targets</li> <li>• Often set out as a four stage process <ul style="list-style-type: none"> <li>○ Introduction – construction – implementation – assessment</li> </ul> </li> <li>• At the start of the process athlete may judge themselves against a current champion or sports perfect model</li> <li>• Performance profiling sets an athlete a base level against which progress can be measured</li> <li>• Helps develop motivation of athlete through long term training</li> <li>• Long-term athlete development programme use performance profiling as a starting point.</li> <li>• Support teams working together to utilize information</li> <li>• Linking together all parties to discuss an athlete/big picture provided for athlete</li> <li>• Disadvantages → may include lack of time or lack of conviction it may work, need to include all and subjective/qualitative</li> </ul> <p data-bbox="465 1174 1234 1208">Other valid points to be credited where appropriate.</p>	(20)

<b>Level</b>	<b>0</b>	No rewardable content
<b>1</b>	<b>1 – 5</b>	<ul style="list-style-type: none"> <li>• A limited discussion that includes descriptive comment and/or lists, with minimal or no evaluation.</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>
<b>2</b>	<b>6 – 10</b>	<ul style="list-style-type: none"> <li>• A basic discussion that includes mostly descriptive comment, and contain limited evaluation of.</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>
<b>3</b>	<b>11 – 15</b>	<ul style="list-style-type: none"> <li>• A good discussion that includes some evaluation.</li> <li>• Subject specific terminology is consistently 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 sound structure with some errors in spelling, punctuation and grammar.</li> </ul>
<b>4</b>	<b>16 - 20</b>	<ul style="list-style-type: none"> <li>• A comprehensive discussion that is coherent and includes a full evaluation.</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
QWC	*9	<p>The indicative content below is a guide to the types of responses used. This should not be viewed as an exclusive list of responses. These need to be marked in conjunction with the level descriptors provided in order to achieve the marks.</p> <p><u>Physiological</u></p> <ul style="list-style-type: none"> <li>• Warm up – includes stages, types of stretches, intensity and duration.</li> <li>• Sources of energy – includes carbohydrate drinks/gels, hydration.</li> </ul> <p><u>Psychological</u></p> <ul style="list-style-type: none"> <li>• Motivation and stress control – mental rehearsal, use of visualisation/imagery, self-talk, pre-game routines, relaxation techniques, somatic and cognitive techniques, control of aggression.</li> </ul> <p><u>Technical</u></p> <ul style="list-style-type: none"> <li>• Selection of kit and equipment for environmental conditions.</li> <li>• Environmental and cultural factors e.g. taking food to suit own needs.</li> <li>• Team talk/going over game plan</li> </ul> <p>Other valid points to be credited where appropriate.</p>	(20)

Level	0	No rewardable content
1	1 - 5	<ul style="list-style-type: none"> <li>• A limited discussion that includes descriptive comment and/or lists, with minimal or no evaluation.</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>
2	6 - 10	<ul style="list-style-type: none"> <li>• A basic discussion that includes mostly descriptive comment, and contains a limited evaluation.</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>
3	11 - 15	<ul style="list-style-type: none"> <li>• A good discussion that includes some evaluation.</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>
4	16 - 20	<ul style="list-style-type: none"> <li>• A comprehensive discussion that is coherent and includes a full evaluation.</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. Precise technical language.</li> </ul>