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GCE Physical Education 6PE03
Mark Scheme (Pre-Standardisation)
Summer 2010

GCE

GCE Physical Education (6PE03/1)

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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.
- 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.

Question Number	Answer	Mark
	Correct nutrition is essential for any elite performer. Name the **three** food groups that can produce energy. For each food group state, and give reasons for, the approximate percentages required by **either** a power athlete **or** an aerobic athlete.	
1		**(9)**

Food group	**Power Athlete**	**Aerobic Athlete**
1. Fats	2. Up to or less than 30% of dietary intake.	2. Up to or less than 30% of dietary intake
	3. Athletes need to gain weight and protein sources are frequently accompanied by higher fat contents / a slightly higher body fat level is not so critical for a power athlete.	3. Excess fat is not required / pursuing a diet with less than 10% fat would be too difficult / fat should be utilised during recovery training / used as energy source when carbohydrates present.
4. Carbohydrates	5. 50 - 70% of dietary intake.	5. 65 - 75% of dietary intake.
	6. Required to fuel high intensity but short duration activity / actual work time will be shorter than for an aerobic athlete	6. Required as main fuel source for majority of activity / training will frequently drain glycogen stores.
7. Proteins	8. 15 - 25%	8. 15-20%
	9. Required to repair muscle tissue damage / facilitate growth / enable recovery. Which is the primary goal of each training session.	9. Required to repair muscle damage after intense or excessively long duration activities.

Question Number	Answer	Mark
	Explain the effects on sporting performance caused by cognitive and somatic anxiety.	
2(a)	**Somatic (Sub max 3)** 1. relationship resembles inverted U 2. best performance is achieved with moderate levels of somatic anxiety 3. very low and very high levels of somatic anxiety lead to low level of performance 4. somatic anxiety should decline once performance begins 5. physiological symptoms e.g. sweating/dry mouth/butterflies/increased HR/ increase in adrenaline/muscular tension **Cognitive (sub max 3)** NB Max 5 6. relationship is negatively linear 7. the more you worry, the worse the performance 8. best performance is achieved with low levels of cognitive anxiety 9. cognitive anxiety may remain high during performance 10. psychological symptoms e.g. worry/ inability to concentrate/loss of attention/fear of failure/nervousness 11. levels of both types of anxiety that can be tolerated depends on levels of self confidence 12. explanation of Inverted U Theory 13. explanation of Multi-dimensional Anxiety Theory 14. explanation of Catastrophe Theory	**(5)**

Question Number	Answer	Mark
	The presence of others can either facilitate or inhibit an athlete's performance. Outline the theory of Evaluation Apprehension.	
2(b)	1. Theory was developed Cottrell 2. Performer feels that they are being evaluated in some context by the crowd / a crowd member. 3. this feeling of evaluation causes arousal/anxiety levels to increase. 4. Autonomous stage of learning / expert / elite / highly confident / extrovert performers performance increases due to increased arousal. 5. Cognitive stage of learning / beginners / low confidence / introvert / performance gets worse due to increase in arousal. 6. experience large increase in anxiety levels. 7. Attention band is narrowed by increase in arousal/good for expert/problematic for beginner. 8. Chance of distraction effect. 9. Status of evaluator is important / significant other.	**(4)**

Question Number	Answer	Mark
	It is desirable for an athlete to recover fully between training sessions. Explain the physiological processes that restore the body to its pre-exercise state.	
3	1. Stage 1 – fast component / alactacid 2. Takes 2-4 mins 3. Stage 1 begins as soon as exercise stops 4. Replenish ATP stores 5. Replenish phosphate/PC stores 6. Reload (oxy)myoglobin / (oxy)haemoglobin 7. Stage 2/slow component/lactacid 8. May take several hours 9. Elevated levels of oxygen consumption to facilitate/aid recovery 10. General removal of lactic acid/conversion to H_2O and C_20 11. Conversion of lactic acid to glygogen 12. Glygogen replenishment/carbohydrate replenishment 13. Tissue repair/appropriate diet/ingestion of protein 14. hormones to resting level 15. enzymes to resting rate 16. Electrolyte replenishment 17. Calcium ions replaced within muscles 18. Active recovery speeds up lactic acid removal 19. Return to resting/normal temperature	**(8)**

Question Number	Answer	Mark
	Comment on the suitability of fartlek training for a games player.	
4	1. Fartlek training is when the intensity of training varies during the course of the training session. 2. Fartlek training is when the terrain varies during the course of the training session 3. Fartlek mimics the patterns of intermittent sports/ The intensity of games varies during performance/ 4. Therefore the principle of specificity is being applied. 5. Fartlek trains multiple energy systems 6. Fartlek trains multiple muscle fibre types 7. Enables athletes to accurately gauge fitness and recovery times relevant to the game. 8. Fartlek training creates adaptations that make player more able to meet the demands of games (this could be one adaptation) 9. Fartlek encourages active recovery 10. Low intensity sections are usually below lactate threshold allowing removal of lactic acid 11. Award 1 marks if suitable examples from 'games' are used	**(6)**

Question Number	Answer	Mark
	Name and explain the two dimensions of achievement motivation	
5	1. Need to Achieve / NAch 2. People are driven to take on challenges / like to push themselves and aren't concerned with failure/don't see failure as a bad thing/ see failure as an opportunity to learn and improve/Takes responsibility/has high intrinsic motivation/ sets personal goals 3. Need to Avoid Failure / NAF 4. People are driven to avoid failure / aren't concerned with pushing themselves/want to avoid humiliation or shame due to failure/ Gives up easily/ blames others/avoids feedback	**(4)**

Question Number	Answer	Mark
	Attribution theory identifies four factors that success or failure can be attributed to. By giving examples, identify these factors and explain whether they should be used after success or failure.	
6	1. Internal – Stable factors eg Ability/skill level / Physique/within players control 2. Best used after a successful performance / not suitable for use after failure 3. Internal – Unstable factors / the box of control eg Effort / Preparation 4. Suitable for use after success / suitable for use after failure 5. External – Stable factors / Task Difficulty/beyond players control/difficult opponents 6. Suitable for use after failure / less suitable for use after success 7. External – Unstable factors eg Luck 8. Suitable for use after failure / less suitable for use after success.	**(8)**

Question Number	Answer	Mark
	Define the term **ergogenic aid** and explain how ergogenic aids can improve performance in elite sport.	
7	Max 5 for applied examples • Anything that enhance performance • Substances or devices that enhance energy production, use or recovery and provide athletes with a competitive advantage • Used to enhance physical power • Increase the amount of muscle tissue used to generate energy • Increase the rate of metabolism processes that generate energy within the muscle • Increase the delivery of energy supplies to the muscle • Counteract the accumulation of substances in the body that interfere with optimal energy production • Dietary supplementation • Can be used to enhance mental strength • Increase psychological processes that maximise energy production • Decrease factors that interfere with optimal psychological functioning • Can be used to enhance mechanical edge • Improve human body biomechanics to increase efficiency by decreasing body mass, especially body fat. • Improve human body biomechanics to increase stability by increasing body mass primarily muscle mass. • Recreating conditions such as atmospheric or altitude though use of hypoxic/heat chambers • Aids that speed up rate of recovery such as ice baths/ice vests/compression clothing • Clothing that reduces drag/air/fluid resistance **Specific examples can be awarded marks as longs as they are explicitly linked to improvements in performance**	**(6)**

Question Number	Indicative content
	Success in global sport now requires good leadership and state-of-the-art scientific back up. Discuss, using examples, the role that sports science now plays in the long term preparation of elite sports performers.
8	ANSWER GUIDELINES - success in modern sport can now mean 100th of a second or a millimetre therefore every thing is done to achieve success - most elite squads now have access to a team of sports scientists - the new UKSI's/other nations institutes offer these services - physiology and physiotherapist the most established science support - physiologists look at types of training required/analysis/energy demands - physiologist would set up training programmes - use of heart rate and threshold knowledge - Physiotherapist look after injured athletes/repairs - Also manage rehabilitation programmes - Nutrionists work to identify energy demands linked to diet/ weight management/ nutrition recovery strategies /managing diet linked to training phases - Sports psychologists also now working with most elite teams - Psychologists work with motivation and arousal levels - Set goals with teams and individuals - May help coach/managers with player analysis - Biomechanics looks at technique/movement analysis - Clothing/equipment/reducing drag/friction/body suits - Biomechanics aim is to make movement more efficient - England Rugby team also use a spatial awareness coach/other named disciplines - Use of technology such as computer analysis/ pro zone/kandle/dartfish as used by England Rugby Team - Most elite squads also use statistics to rack a players involvement in games

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-4	An answer that mostly fails to address the question and contains many inaccuracies and irrelevancies. Very little evidence of synoptic analysis with statements that demonstrate a lack of understanding. A poorly structured answer. Incorrect spelling, punctuation and grammar. Incorrect use of terminology. Many inaccuracies.
Level 2	5-8	An answer that fails to address many parts of the question. There is little evidence of synoptic analysis with sweeping statements that may contain some relevant information but generally remain unsupported by evidence or accurate examples and suggest limited understanding. Irrelevant points and repetition may be used to pad out the answer. A poorly structured answer in which there may be errors in spelling, punctuation and grammar. Incorrect use of terminology. A significant proportion of material is irrelevant.
Level 3	9-12	An answer that **describes** the use of sports science in long term preparation. There is little evidence of analysis although some basic understanding of how each of the disciplines can be used. Relevant points may be supported by examples but only partially developed – there may be some inaccuracy in dates and names. Limited attempt at a conclusion. A basic structure is evident. Some incorrect use of terminology. There may be errors in spelling, punctuation and grammar. A number of inaccuracies.
Level 4	13-15	**Attempts to answer the question – though may still lack depth and or develop discussion** of the use of sports science in some elements of long term preparation, but answer may be biased towards one physiology or psychology.. Some analysis and debate is evident, although this may be lacking both in depth and balance - will be mainly concerned with the positive impact .The answer makes an attempt to address the key issues raised in the question. An obvious attempt to structure the essay. Fundamentally sound use of terminology. Generally clear and concise with limited inaccuracies. Satisfactory spelling, punctuation and grammar.
Level 5	16-18	An answer that **discusses** the use of sports science in long term elite sports preparation - makes some reference to the impact. A good understanding is demonstrated through some detailed analysis and may challenge use of sports science in sport as merely fashion. Factual information and accurate examples, many taken from global games, are used in support of points made. Will include a conclusion and an attempt at synthesis – but this may be more descriptive. A well structured answer with predominantly accurate use of spelling, punctuation and grammar. Correct use of terminology. Clear and concise but may occasionally make an irrelevant comment.
Level 6	19-20	An answer that **debates** in detail the use of a variety of sports science strands in the long term preparation of elite sports performers. There is in-depth understanding of how sports science disciplines are used to improve performance and monitor progress. Includes correct use of technical language and factual information throughout, demonstrating a clear understanding of the subject matter. A range of accurate practical examples predominantly taken from global games supports the vast majority of points. A range of contemporary and original statements are included. There is a clear attempt at syntheses through a reasoned conclusion this should include a discussion of the merits and limitations of such a change in emphasis. A well structured answer with continuous prose. Predominantly accurate use of spelling, punctuation and grammar. Correct use of terminology. Clear, concise and relevant throughout.

Question Number	Short term preparation refers to the period prior to a competitive performance. Using the headings **physiological**, **psychological** and **technical**, outline the strategies and considerations elite athletes take into account in their short term preparation for global games.
9	Indicative content
	CONTENT GUIDELINES Better answers will refer to a range of examples in their answer **Physiological** • Thorough period of warm up, stretching muscles and raising body temperature • Tapering of training nearer athletes gets to competition • Importance of rest, need to allow body to fully recover/ sleep management/jet lag • Nutrition adjustment , carbo loading, time of last meal/replenishment of energy stores/creatine loading/sodium loading • Hydration – importance of maintaining fluid balance/checking hydration status/pee chart/electrolytes Short term acclimatization – heat/humidity/sweat response **Psychological** • Use of mental preparation, techniques to include rehearsal, watching previous good performances • Inverted U – developing correct level of arousal, getting into 'zone' • Visit to venue/train at venue day before • Mental rehearsal, use of imagery, linked to tactics • Team preparation- aiming to develop cohesion and team spirit, importance of team briefs and meetings • Watching tapes of opposition, highlighting opponents strengths and weaknesses. • Stress management/aggression control /relaxation techniques **Technical** • checking equipment • matching footwear clothing to environmental situation, studs, ice jackets in warm climate • Use of holding camps by teams to help prepare • Getting away from pressure – families and media/media management • Familiarisation with venue/ access transport /stadium Rehearsals of game plan/tactics/ free kicks Review of opponents techniques/tactics

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-4	An answer that mostly fails to address the question and contains many inaccuracies and irrelevancies. Very little evidence of synoptic analysis with statements that demonstrate a lack of understanding. A poorly structured answer. Incorrect spelling, punctuation and grammar. Incorrect use of terminology. Many inaccuracies.
Level 2	5-8	An answer that fails to address many parts of the question. There is little evidence of synoptic analysis with sweeping statements that may contain some relevant information but generally remain unsupported by evidence or accurate examples and suggest limited understanding. Irrelevant points and repetition may be used to pad out the answer. A poorly structured answer in which there may be errors in spelling, punctuation and grammar. Incorrect use of terminology. A significant proportion of material is irrelevant.
Level 3	9-12	An answer that **describes accurately** the concept of short term preparation. There is little evidence of analysis although some basic understanding of how short term strategies are used by performers. Relevant points may be supported by examples but only partially developed – there may be some inaccuracy in dates and names. Limited attempt at a conclusion. A basic structure is evident. Some incorrect use of terminology. There may be errors in spelling, punctuation and grammar. A number of inaccuracies.
Level 4	13-15	**Attempts to answer the question – though may still lack depth and or develop discussion** of short term strategies in some elements, but answer may be biased towards one or more area.. Some analysis and debate is evident, although this may be lacking both in depth and balance - will be mainly concerned with the positive impact it makes an attempt to address the key issues raised in the question. An obvious attempt to structure the essay. Fundamentally sound use of terminology. Generally clear and concise with limited inaccuracies. Satisfactory spelling, punctuation and grammar.
Level 5	16-18	An answer that **discusses** the use of a range of short term strategies in all three areas - making some reference to the impact. A good understanding is demonstrated through some detailed analysis and may use examples, of named holding camps used by elite teams. Factual information and accurate examples, many taken from global games, are used in support of points made. Will include a conclusion and an attempt at synthesis – but this may be more descriptive. A well structured answer with predominantly accurate use of spelling, punctuation and grammar. Correct use of terminology. Clear and concise but may occasionally make an irrelevant comment.
Level 6	19-20	An answer that **debates** in detail the various short term strategies that can be employed by elite performers There is in-depth understanding of how all three areas link and the fact that in the 21st century many elite performance have to move to holistic approach to short term preparation. . Includes correct use of technical language and factual information throughout, demonstrating a clear understanding of the subject matter. A range of accurate practical examples predominantly taken from global games supports the vast majority of points. A range of contemporary and original statements are included. There is a clear attempt at syntheses through a reasoned conclusion this should include a discussion of the merits and limitations of such a change in emphasis. A well structured answer with continuous prose. Predominantly accurate use of spelling, punctuation and grammar. Correct use of terminology. Clear, concise and relevant throughout.