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Mark Scheme (Results)
Summer 2010

GCE

GCE Physical Education (6PE01/01)

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Question Number	Answer	Mark
1(a)	1. Healthy lifestyle is when diet, exercise and work life balance are considered and managed appropriately / balanced diet with regular exercise / the definition of healthy lifestyle is being applied 2. Active lifestyle is when a person regularly takes part in physical activity.	**(2)**

Question Number	Answer	Mark
1(b)	1 mark for definition, max of 2 marks for reasons why it is such a concern. 1. Obesity refers to a level of body fat over and above the accepted gender norm / 25% over the accepted gender norm. Is also a concern for society because; 2. Obesity is linked with many other problems and diseases including coronary diseases, diabetes, high blood pressure and certain forms of cancer. 3. puts additional burden oh the health service 4. the trend is that obesity levels are increasing 5. Not just an increasing trend for middle age upwards – but also for 2 – 10 year old children	**(3)**

Question Number	Answer	Mark
1(c)	Answers must be linked to contemporary concerns that are listed on the specification 1. <u>Coronary heart disease</u> 2. Coronary heart disease (CHD), is the end result of the accumulation of plaques and fatty deposits within the walls of the arteries that supply the myocardium. Consequently these blood vessels begin to clog and passage through them becomes restricted. 3. <u>Diabetes</u> 4. Diabetes is a disease that is characterized by the bodies inability to make sufficient insulin or alternatively from its resistance to insulin. 5. <u>High blood pressure</u> 6. Blood pressure is the pressure exerted by blood in an artery. / High Blood Pressure, or hypertension, is a condition in which blood pressure levels are above the normal range. 7. <u>High cholesterol</u> 8. High levels of Low Density Lipoprotein LDL cholesterol which often leads to coronary heart disease and high blood pressure.. 9. <u>Metabolic syndrome</u> 10. Metabolic syndrome is a combination of medical disorders that increase the risk of cardiovascular disease and diabetes. 11. <u>Stress</u> 12. The body responds to stressors by activating the nervous system and the production of certain hormones / the stress response can cause problems when it overreacts or fails to turn off and "reset itself properly." 13. <u>Sedentary lifestyles</u> 14. A Sedentary lifestyle refers to one that is predominantly lacking in physical activity 15. <u>Ageing population</u> 16. When the biggest growing proportion of the population that is experiencing growth is at or above retirement age. <u>Access</u> 17. In terms of sport and physical activity access is a result of both opportunity and provision.	**(4)**

(Total 9 marks)

Question Number	Answer	Mark
2(a)	Max of 2 for necessity to get correct balance 1. Energy balance refers to energy intake vs energy expenditure They need to consider 2. energy spent on basal metabolism and 3. the energy spent on the physical activity. 4. the energy required for recovery 5. the types of food and the calories contained	**(3)**

Question Number	Answer	Mark
2(b)	Points 3 & 5 should be awarded only if the link to performance is explicit 1. An athlete who wants to maintain performance needs to ensure that they have sufficient energy to perform and recover. 2. Too much of any one thing will mean an energy surplus which in turn will lead to excess body weight and drop off in performance. 3. Excess body fat could lead to a drop off in performance. 4. Too little of anything will mean either a lack of available energy and so a reduced performance or a slower recovery which will inhibit future performances. 5. Reduced body fat could lead to a reduced performance or a slower recovery which will inhibit future performances.	**(3)**

Question Number	Answer	Mark
2(c)		**(6)**

Food groups	Specific function
1. Carbohydrates	2. High intensity fuel/provides blood glucose/neural energy
3. Fats	4. Insulation and low intensity fuel
5. Proteins	6. Muscle growth, repair and last resort energy/amino acid pool

(Total 12 marks)

Question Number	Answer	Mark
3(a)	1. A response is a short term temporary change such as an increase in heart rate as a response to increased production of CO2. 2. An adaptation is a long term permanent change as a result of continued exposure to an environment. E.g. heavy weight training will encourage muscular hypertrophy.	**(2)**

Question Number	Answer	Mark
3(b)	1 mark for each response and 1 mark for each physiological benefit. Max of 2 marks for responses 1. Vascular shunting 2. enables blood to be directed to where it is most needed / allows increased O2 delivery to working muscles. 3. Increased venus return 4. facilitates increased Q 5. Increased HR - 6. enables more/quicker delivery of O2 / removal of CO2 7. Increased strength of ventricular contractions 8. decreased end systolic volume – increased SV / increased volume of blood ejected per beat (increased SV)	**(4)**

(Total 6 marks)

Question Number	Answer	Mark
4	No mark for the named sport / physical activity. No marks for components of fitness unless they are appropriate for the named activity. Max of 3 marks for defined components of fitness. Marks can be awarded for applied components of fitness even if not previously defined. e.g. Games player 1. Speed is defined as the time taken to cover a specific distance. 2. Required to beat an opponent or reach the ball / marker. 3. Power is defined as strength x speed 4. Required to jump / shoot / accelerate 5. Aerobic endurance is defined as the ability to sustain sub maximal activities 6. Required in order to sustain effective performance for the duration of the event. 7. Cardiovascular endurance, the ability of the CV system to work to deliver O2 and remove waste from the working muscles 8. Required to last the duration of the game. Or similarly defined and applied components of fitness.	**(6)**

(Total 6 Marks)

Question Number	Indicative content
5	NB. Performance generally improves with age up to physical maturation, Good counter argument for top band candidates. Post physical maturation physical fitness may stop may stop improving however psychological factors (experience, etc) may enable continued improvements in performance Physical maturation will differ for different types of activities, i.e. power based activities will peak at late 20's / early 30's, however endurance based activities will peak later – mid 30's, even later still for extreme endurance based activities. Increases in production of growth and anabolic hormones facilitate quicker recovery times and so more frequent and intense training. Improved neural pathways produce better / quicker and more efficient movements Reasons for a drop off in physical performance; Muscular Strength (Maximal) 1. tend to be less active = less muscle mass 2. Perform less higher intensity exercise = less muscle mass 3. Produce less human growth hormone = less tendency to grow 4. Produce less testosterone = slower recovery time = less frequent training 5. There appears also to be a degeneration of the nerves supplying the muscles. 6. Extra collagen fibres are laid down between the muscle fibres, which reduces the elasticity of the muscle = with a resultant decrease in efficiency. 7. Lose some motor neurons from motor units which leads to a loss of muscle fibers, especially type II muscle fibers; Cardiovascular Endurance. 8. Decreased elasticity of cardiac muscle = reduced MHR by average of 10 beats per decade. 9. Decreased left ventricular contractile performance = in a decreased stroke volume. 10. A decline in total blood volume, plasma, and red blood cells. 11. a decline in the size and density of mitochondria of skeletal muscle, = less efficient use of delivered O2 12. an increase in blood pressure and systemic vascular resistance, as a result of a gradual stiffening and or narrowing of the arteries. Resting Metabolic Rate 13. General lack of or less exercise = lower RMR. 14. A secondary effect of being less physically active is a loss of lean tissue, muscle mass in this case. Muscle is fat hungry and so losing muscle mass also encourages a lower BMR. Flexibility. 15. Wear and tear on connective tissue, - ligaments and cartilage-, = reduced joint mobility. increased collagen content within skeletal muscle and any scar tissue = reduced muscle elasticity

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-3	**Content** Simple statements such as loss of strength / speed etc will be evident with very little, if any, support to the statements. There will be no mention of performance improving with age, just an assumption that it declines. **Characteristics** Candidates will produce brief and narrative answers, making simple statements, showing little relevance to the question. The material will be mostly generalised. No attempt at the analytical demands of the question. The skills needed to produce effective writing will not normally be present. The writing may have some coherence and will be generally comprehensible, but lack both clarity and organisation. High incidence of syntactical and/or spelling errors.
Level 2	4-6	**Content** There will be a more accurate and detailed list of changes to fitness during the aging process. There will be some basic explanation as to the effect upon performance with limited or no explanation as to the cause of the change. E.g. There will be a loss of speed when you get older which will affect your ability to get to the ball in tennis…. But no explanation as to why there is a loss of speed. The assumption will still be largely centred on the negative / ageing post maturation. **Characteristics** Candidates will produce statements with some development in the form of mostly accurate and relevant factual material. There will be some attempt at analysis, with limited success. Range of skills needed to produce effective writing is likely to be limited. There are likely to be passages which lack clarity and proper organisation. Frequent syntactical and/or spelling errors are likely to be present.
Level 3	7-9	**Content** The reasons for the changes in performance will be comprehensive and accurate. There will be reasons given for the changes in performance i.e. MHR declines due to a loss of elasticity in the myocardium The candidate might begin to identify that performance improves up to maturation and declines there after. **Characteristics** Candidates answers will show some understanding of the focus of the question and will be broadly analytical. They will, however, include material which is descriptive, and thus only implicitly relevant to the question's focus, or which strays from that focus. The candidate will demonstrate most of the skills needed to produce effective extended writing but there will be lapses in organisation. Some syntactical and/or spelling errors are likely to be present.

Level 4	10-12	**Content** The reasons for the changes in performance will be comprehensive and accurate. There will be reasons given for the changes in performance i.e. MHR declines due to a loss of elasticity in the myocardium There will be an awareness that performance improves up to maturation and declines there after. There will be discussion to identify that maturation will be at different ages for different activities, i.e. female gymnastics – pre 16, power events – mid 20's, endurance events – mid 30's Top answers may also offer an explanation as to what can be done to offset the aging process **Characteristics** Candidates will offer an analytic response which is sustained and relates well to the focus of the question, and addresses the key issues contained in it. The analysis will be supported by accurate factual material, which is relevant to the question. The skills needed to produce convincing extended writing in place. Good organisation and clarity. Very few syntactical and/or spelling errors may be found. Excellent organisation and planning.

(Total 12 Marks)

Question Number	Answer	Mark
6(a)	1. often based around the necessary survival skills 2. Combat based / preparation for war 3. reflected the Feudal system / two tiered society 4. were rural / localised due to lack of transport 5. had few rules / / un coded / lack of education 6. were often violent Sporting activities reflected societal position. 8. Influence of the church / holy days 9. Seasonal / calendar based / occasional 10 Gender bias i.e. male dominated society and sports.	**(4)**

Question Number	Answer	Mark
6(b)	1. Initially less time/ shift pattern of work/ long hours/ machine time 2. Introduction of ½ day holiday/ development of set leisure time 3. Urbanisation/ lots of people for team/ development of spectating 4. Less space for sport/ loss of common land 5. Purpose built facilities for sport and recreation/ development of parks and playing fields 6. Move to spectating rather than playing/ more watch few play/ led to development of professionalism 7. Development of travel meant teams/ players could travel to fixtures 8. Led to need for nationals sets of rules 9. Development of education/ literacy meant people could now understand rules 10. Less influence of church/ holidays became industrial holidays 11. Reduction in violence/ need for fit workforce/ banning of animal sports 12. Machines meant equipment could be massed produced/ cheaper/ easier access 13. Development of factory/ church teams 14. Growing media and literate population	**(6)**

Question Number	Answer	Mark
6(c)	1. Urbanisation led to large congregations of populations/ new towns 2. A lack of space put restrictions on playing areas and therefore playing numbers 3. Commercial opportunity from numbers of spectators / entrepreneurs / business opportunity / factory team development / ticket revenue 4. as participation became restricted (by number) then there were more people available to spectator 5. codification brought about accepted rules that were understood / facilitated leagues / competitions / desire to win 6. Transport meant that teams and fans could travel aiding development of league and cup competitions. 7. Media created an affiliation with teams for spectators and increased the need to win. 8. Need to compensate workers for lost earnings with broken time payments 9. rugby split to form two codes with one being openly professional 10. Regular wages produced greater disposable income for spectating	**(5)**

(Total 15 Marks)

Question Number	Answer	Mark
7(a)	1. Opportunity for *anyone/ everyone* to take part in sport or recreation 2. Access regardless of race/ gender/ age/ ability/ socio economic background 3. reference to the terms grass roots/foundation/level 4. increased provision made for differing needs 5. Mass participation is an ideal rather than a reality 6. Fun / recreational aspect emphasised	**(2)**

Question Number	Answer	Mark
7(b)	1. Increase in the base of the pyramid/ excellence benefits/ more to pick from 2. Improved health/ fitness of population 3. Greater efficiency of work force/ less time off sick/ higher levels of productivity 4. Less money spend on health service 5. Reduction in crime rates/ social problems 6. Better social integration/ less racial/ social tension 7. Raise morale/ self esteem of population 8. Economic benefits/ increased level of spending/ job creation 9. Creation of healthy/ positive image attractive to sponsors/ investors/ tourists	**(6)**

(Total 8 Marks)

Question Number	Answer	Mark
8(a)	Sub max of 4 for either how or why. Why 1. Generic answer of national recognition / shop window / international success / winning medals (only credit this answer once) 2. Need to create national pride / a sense of nationhood East Germany 2. New country (post WW2) need for international recognition 3. Clash of ideologies/ attempts to show that communism was better than capitalism (East vs West) Australia 4. Australia's disappointing performance at the 1976 Olympics led to the Australian government reviewing its elite sports system. How East Germany 5. a series of tests and screening of 7 year olds 6. results were analysed by the National Sports Federation 7. those that scored well were invited to attend local training centres several times a week 8 if progress was good then at 10 years of age they would be transferred to a sports boarding school, the transfer was virtually compulsory 9 While at the schools students would have 2 hours of academic study and 6 hours of sports coaching and physical training each day. Australia 10. Australian Institute of Sport (AIS) opened in 1981, works in a similar way to the East Germany high performance centres 11 the Australian Institute of Sport (AIS) was created as a central focus for identifying and developing elite/ world class facilities and support services 12 the AIS has 35 sport programs in 26 sports 13 AIS provides scholarships for future world-beaters Generic point for either East Germany or Australia; 14. Institutes exist(ed) for identifying and developing elite/ world class facilities and support services 15. They provide top level coaching; access to equipment, sport sciences and medicine facilities; accommodation, meals and travel; and assistance with education and career planning.	**(6)**

Question Number	Answer	Mark
8(b)	1. To develop elite and prospective elite performers / aiming to increase UK international standing in sport / winning more medals / provide access to elite level competition. 2. Provide elite facilities for training and preparation 3. Provide sports science support / technological aids and support 4. Provide a base for national coaches and access for athletes to these coaches 5. Provide a regional focus for athletes 6. Provide medical support for the athletes 7. Provide lifestyle management training 8. Fulfil a role regarding scouting and talent identification 9. Providing training and facilities for schools and groups / providing venues for championship finals	**(4)**

(Total 10 Marks)

Question Number	Indicative content
9	Developed by Istvan Balyi from 1990 to the present day, was initially an elitist talent development model now adopted as an athlete retention model. Based around a late specialisation model of 6 phases Phase 1: Fundamentals - Objective is to learn Fundamental motor skills Phase 2: Learning to train - Objective is to learn Fundamental sport skills Phase 3: Training to train - Objective is to Build Fitness & Specific Sports Skills Phase 4: Training to compete - Objective is to refine skills for a specific event or position Phase 5 - Training to win - Objective is to maximise performance in competition Phase 6 - Retirement & retainment / active for life - The main objective should be to retain athletes for coaching, officiating, sport administration etc. Early and late specialisation models, early models containing 4 levels / stages, the merger of the first 3 levels, training to compete, training to win and retirement and retainment. Late specialisation models utilising the 6 identified stages. Early specialisation models being more appropriate for sports such as gymnastics, swimming, etc Late specialisation models being appropriate for activities that require greater tactical awareness or physical fitness such as invasion games, athletics etc. Applied e.g. England Netball, have adopted the LTAD approach to development through six progressive steps, Aim being to enable individuals to reach their potential in the stage that fits their ability and aspirations. Identifies physical literacy as essential Physical literacy includes competency in basic motor and sport specific skills The benefits of physical literacy enable an athlete to later pursue other sports rather than being tied to just netball Physical literacy is linked to lifelong sports participation as well as improved performance. 1st stage Fundamentals/ Excitement. Between 5/6 and 11 years of age 2nd stage Learning to Train Skills Between 11 and 15/16 years of age 3rd stage Training to Train Friendship Between 15/16 and 16/17 years of age 4th stage Training to Compete Energy Ages 16/17 + 5th stage Training to Win Teamwork Ages 16/17 + 6th stage Retention Health Individual choice

Level	Mark	Descriptor
	0	No rewardable material
Level 1	1-3	**Content** Candidates may identify that there are a different phases / stages within the LTAD and may be able to name some accurately. They will be able to identify that the programme is a development one. **Characteristics** Candidates will produce brief and narrative answers, making simple statements, showing little relevance to the question. The material will be mostly generalised. No attempt at the analytical demands of the question. The skills needed to produce effective writing will not normally be present. The writing may have some coherence and will be generally comprehensible, but lack both clarity and organisation. High incidence of syntactical and/or spelling errors.
Level 2	4-6	**Content** Candidates will identify the correct phases / stages within the LTAD, naming and describing the purpose of most. Candidates may refer to a specific example from a named sport in order to illustrate how they have been implemented in UK sport. Reference may be made of the early and late specialisation models although application to different activities may be missing. **Characteristics** Candidates will produce statements with some development in the form of mostly accurate and relevant factual material. There will be some attempt at analysis, with limited success. Range of skills needed to produce effective writing is likely to be limited. There are likely to be passages which lack clarity and proper organisation. Frequent syntactical and/or spelling errors are likely to be present.
Level 3	7-9	**Content** Candidates will identify the correct phases / stages within the LTAD, naming and describing the purpose of each. Candidates will identify that it was designed as an elitist model but that it has now been adopted and used as a retention model, / that the LTAD is a tool to introduce people into sport and then to keep them involved. Reference may be made of the early and late specialisation models with some application to different activities. Reference may be made of the need for physical literacy but explanations of it may be brief. Candidates may refer to a specific example from a named sport in order to illustrate how they have been implemented in UK sport. **Characteristics** Candidates answers will show some understanding of the focus of the question and will be broadly analytical. They will, however, include material which is descriptive, and thus only implicitly relevant to the question's focus, or which strays from that focus. The candidate will demonstrate most of the skills needed to produce effective extended writing but there will be lapses in organisation. Some syntactical and/or spelling errors are likely to be present.

Level 4	10-12	**Content** Candidates will identify the correct phases / stages within the LTAD, naming and describing the purpose of each. Candidates will identify that the LTAD is a tool to introduce people into sport and then to keep them involved. Candidates may make clear reference to a specific example from a named sport in order to illustrate how they have been implemented in UK sport. Reference will be made of the early and late specialisation models with application to different activities. Reference may be made of the need for physical literacy but explanations of it may be brief. Candidates will recognise that the model allows for greater flexibility, that it is not as linear as other models and provides provision for late developers" and movement between sports. Candidates may discuss the early and late specialisation models. **Characteristics** Candidates will offer an analytic response which is sustained and relates well to the focus of the question, and addresses the key issues contained in it. The analysis will be supported by accurate factual material, which is relevant to the question. The skills needed to produce convincing extended writing in place. Good organisation and clarity. Very few syntactical and/or spelling errors may be found. Excellent organisation and planning.

(Total 12 Marks)

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