

Version 2.0



**General Certificate of Education
January 2012**

Physical Education 1581

PHED1

**Opportunities for and the Effects of
Leading a Healthy and Active Lifestyle**

Post-Standardisation

Mark Scheme

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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Section A

Applied Exercise Physiology

Question 1

1 (a) (i) What do you understand by the term ‘stamina’ **and** why is it an important component of fitness for football players? *(2 marks)*

<p>A. Ability to delay the onset of <u>fatigue</u></p> <p>B. Important because of the duration of the game eg 90 mins;</p>	<p>Needs to be close to exactly correct to gain mark.</p> <p>Game lasts a long time is too vague. Needs some idea of lasting 90 minutes or equivalent</p>
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1 (a) (ii) Name **two** other components of fitness **and**, using examples, explain why each component is important in a game of football. *(3 marks)*

<p>A. Any two of the following:</p> <p>Power; Speed; Flexibility; Balance; Agility, Reaction time; Co-ordination; Muscular endurance</p> <p>Reason:</p> <p>B. Power – move body quickly/jump high/ apply force to ball/shoot/tackle;</p> <p>C. Speed – get to ball quickly/run fast;</p> <p>D. Flexibility – reach in tackle/stretch to get to ball;</p> <p>E. Balance – stay stable/not fall when dribbling;</p> <p>F. Agility – change direction quickly;</p> <p>G. Reaction time – respond quickly/make decisions/read game (especially goalkeepers);</p> <p>H. Co-ordination – move legs/feet/hands smoothly;</p> <p>I. Muscular endurance – repeated skills/ muscle contractions</p>	<p>First two answers only.</p> <p>Not strength, not body composition</p> <p>Example must convey idea that student understands definition of component by implication eg dribbling implies co-ordination. Do not accept use of component in definition – eg balance is ability to stay balanced or reaction time is ability to react quickly.</p> <p>I. Emphasis is on repeated</p>
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1 (b) During a game of football, a player’s heart rate will vary.

Explain how changes in the acidity of the blood cause the heart rate to increase during a game of football. (4 marks)

<p>A. Blood’s acidity increases/pH lowers; B. Caused by more carbon dioxide being produced; C. This is detected by <u>chemoreceptors</u>; D. Nerve messages are sent to the <u>medulla</u> (oblongata)/cardiac (control) centre; E. Sympathetic nervous impulses are sent; F. To the Sino-Atrio node/SAN/SA node; G. Decrease in parasympathetic/vagus nerve impulses;</p>	<p>A. Eq = more hydrogen ions/H⁺ B. needs more/increased C. needs idea of detect D. Needs idea of communication with medulla CCC too vague G. Needs idea of decrease/less vagus impulses</p>
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1 (c) (i) What term is used to describe a resting heart rate that is below 60 beats per minute? (1 mark)

<p>A. Bradycardia/athletes heart;</p>	<p>Accept Bradicardia/bradycardiac/ bradacardia/bradiycardia/equiv.</p>
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1 (c) (ii) How does a lower resting heart rate affect oxygen delivery to muscles? (2 marks)

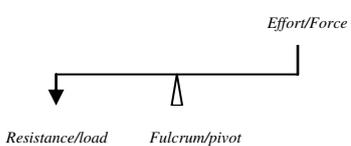
<p>A. Less oxygen needed for contractions of heart; B. More oxygen available for muscle contractions; C. Increased heart rate range</p>	<p>A. Oxygen key word</p>
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Question 2

2 (a) (i) Complete **Table 1** to identify the ‘main agonist’, the ‘type of muscle contraction’ and the ‘joint action’ at the **elbow joint** during the movement from Position **A** to Position **B**. (3 marks)

<p>A. Triceps (brachii); B. Concentric/isotonic; C. Extension;</p>	<p>A. Accept 1st answer only; accept triceps; biceps is wrong! C. accept flexion to extension</p>
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- 2 (a) (ii)** Using **Figure 1**, name, sketch and label the lever system operating at the elbow during the movement from Position **A** to Position **B**. (3 marks)

<p>A. First class/order; B. Correct order – Fulcrum in middle; C. Correct labels – resistance/fulcrum/effort;</p>	<p>Other way around is still correct</p> 
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- 2 (b)** During a game, the blood pressure of a player increases.
 What factors determine the ‘blood pressure’ in arteries? (3 marks)

<p>A. Contraction of the heart/stroke volume/ejection fraction/heart rate; B. Increased blood flow/cardiac output/Q; C. (Peripheral) resistance/friction/elasticity of walls; D. Blood viscosity/sweating/loss of fluid; E. Blood vessel length/distance from the heart; F. Blood vessel diameter/size/vasoconstriction/vasodilation/cross sectional area/lumen size; G. Health factor/atherosclerosis/diet/stress/drugs/hereditary; H. Age/level of fitness/intensity of exercise;</p>	<p>A. Idea of contraction/beating of heart B. Idea is more blood = more pressure C. Thickness of blood D. Accept size E. Accept alternatives, but NOT injury</p>
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- 2 (c)** During a game, a player’s arterio-venous oxygen difference (a-vO₂ diff) will increase.
 What is the significance of this increase in a-vO₂ diff to the player? (3 marks)

<p>A. Difference between oxygen content of arterial and venous blood B. More oxygen is needed/extracted by the muscles; C. Used/needed for energy/ATP production; D. Endurance/stamina/aerobic exercise; E. Leads to improved performance; F. Increased oxygen diffusion at lungs/alveoli/muscle; G. More oxygen in blood; H. More CO₂ in blood/produced;</p>	<p>B. Oxygen is key term C. Idea of role of oxygen D. Idea of what type of exercise E. Must be linked to C/D G and H. Must be linked to F</p>
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Skill Acquisition

Question 3

- 3 (a) (i) The swimming start can be classified on continua as ‘open – closed’, ‘self paced – externally paced’ and ‘discrete – serial – continuous’.

Classify the swimming start using these **three** continua. (1 mark)

A. Closed, Externally-paced, Discrete;	No alternatives
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- 3 (a) (ii) Justify how **two** of these continua may change during the race. (2 marks)

<p>A. Becomes open – affected by environment – pacing/keeping up/ adjusting speed;</p> <p>B. Becomes self-paced – speed determined adjusted by performer;</p> <p>C. Becomes continuous – repeated actions/cycles/strokes/no clear beginning or end or becomes serial – different actions linked together – start; strokes; turns;</p>	<p>Accept first two answers</p> <p>A. Idea that environment changes/decisions are made</p> <p>B. Idea that performer decides speed/pace</p> <p>C. Idea that skill is repetitive or is a sequence of different skills</p>
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- 3 (b) The swimming start is a skill that requires certain abilities to be performed well.

Using examples from a swimming start, explain the **differences** between ‘motor ability’ and ‘perceptual ability’. (3 marks)

<p>A. Motor ability – concerned with movements/actions/performing task;</p> <p>B. Eg Leg/arm/body muscle contractions/ pushing off the blocks;</p> <p>C. Perceptual ability – receiving/ recognising/selecting information from senses;</p> <p>D. Eg reacting to the gun;</p>	<p>A. Motor = movement A named motor ability must be linked to the example</p> <p>B. Not a named skill</p> <p>C. Perception = working out/ deciding; NOT anticipation</p>
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- 3 (c)** Using **Figure 3**, explain how attention, motor production and motivation are used to help the process of learning a skill. (3 marks)

<p>A. Attention – learner is watching/ performance is attractive/successful/ demonstration can be seen/is accurate/ create mental image;</p> <p>B. Motor production – learner has the abilities/skills to complete the task/is able to practise immediately;</p> <p>C. Motivation – reinforcement/praise/ sense of pride/sense of satisfaction/ status of model;</p>	<p>Answers must link to named stages</p> <p>A. Either performer watches or performance is worth watching</p> <p>B. Is about performer’s abilities/skill levels</p> <p>C. Idea that performer wants to learn skill</p>
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- 3 (d)** Suggest how a coach might help a performer to retain newly learned skills. (3 marks)

<p>A. Frequent practises/rehearsals/over learning/massed practise/repeated;</p> <p>B. Use of positive feedback;</p> <p>C. Reinforcement/to praise/motivate/ rewards;</p> <p>D. Highlight cues/verbal repetition of key learning points;</p> <p>E. Emphasise need to feel correct movements/attend to kinesthesia;</p> <p>F. Use of imagery/mental rehearsal/ visualisation;</p> <p>G. <u>Transfer</u> from previously learned skill;</p> <p>H. Fun/enjoyable/realistic;</p> <p>I. Associate with familiar information/ chaining/chunking;</p> <p>J. Make information relevant/ meaningful;</p>	<p>A. Not just ‘practise’; must be a qualified practise</p> <p>B. Not just ‘feedback’</p>
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Question 4

4 (a) (i) Name the early and the final stages of learning, **and** describe the characteristics of each. (3 marks)

<p>A. Cognitive <u>and</u> autonomous stages;</p> <p>B. Cognitive – needs instruction/ demonstration/forms mental/image/ trying to understand/many errors;</p> <p>C. Autonomous – without conscious thought/able to focus on other factors – tactics/stress management;</p>	<p>A. Both terms needed and first two answers B and C obtainable without named stages</p>
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4 (a) (ii) Describe how the ‘feedback’ that a tennis player uses will change between these two stages of learning. (3 marks)

<p>Feedback used is <u>more</u>:</p> <p>A. (mainly) intrinsic/kinaesthetic/correct own mistakes/proprioceptors;</p> <p>B. Knowledge of performance (KP);</p> <p>C. Can be delayed;</p> <p>D. Concurrent/continuous;</p> <p>E. Negative/critical</p> <p>F. Specific/detailed;</p>	<p>No credit for cognitive phase descriptions</p> <p>Accept opposites – less extrinsic; less KR; immediate; terminal; positive; simple/general;</p>
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4 (b) (i) Using examples from tennis, explain how the relationship shown in **Figure 4** will affect the time it takes for a player to respond to an opponent’s shot. (3 marks)

<p>A. More choices slows/longer response time;</p> <p>B. High number of responses – no change in response time/plateau;</p> <p>C. Hick’s Law</p> <p>D. Player plays expected/same stroke – quick response time;</p> <p>E. Player plays unexpected/different shot – delays response time;</p>	<p>A. Shown on fig 4</p> <p>B. Shown on fig 4 Plateau must link to number of responses Sub max 2 marks D/E must be examples from tennis</p> <p>D. idea that response time is quick when few choices</p> <p>E. idea that response time is slower if many choices</p>
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- 4 (b) (ii)** Use the ‘single channel hypothesis’ to explain why there is a delayed response by a player in tennis when their opponent’s shot hits the top of the net and changes direction. (3 marks)

<p>A. <u>Single channel hypothesis</u> – one stimulus processed at a time;</p> <p>B. Second stimulus arrives before first response can be completed;</p> <p>C. Cannot deal with second stimulus/ response until finished with first stimulus/response;</p> <p>D. There is a slower/longer response/ reaction time;</p> <p>E. Psychological Refractory Period</p> <p>F. Player reacts too late/rushed shot/unforced error/egs/cannot return/opponent wins/player loses point;</p>	<p>A. definition of single channel hypothesis</p> <p>B. What happens</p> <p>C. Problem</p> <p>D. Consequence</p> <p>E. Called – Do not accept PRP</p> <p>F. Practicality</p>
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Opportunities for Participation

Question 5

- 5 (a)** Outline the main **differences** between ‘physical education’ and ‘active leisure’. (4 marks)

<p>Physical education</p> <p>A. Compulsory /School time/lessons;</p> <p>B. Formal teaching & learning/National Curriculum/syllabus/key stages;</p> <p>C. Teacher in Authority;</p> <p>D. Foundation level;</p> <p>E. Highly structured/pre-planned times-sessions/activities/organised;</p> <p>Active leisure</p> <p>F. Voluntary/choice/no obligation;</p> <p>G. In leisure/free/own time;</p> <p>H. Informal/relaxed/casual;</p> <p>I. Individual/participants control activity/ self-regulated;</p> <p>J. Participation level;</p> <p>K. Limited/simple organisational structure;</p>	<p>If not identified; assume student refers to PE</p> <p>Response says PE is ..., but active leisure is ...; – could be worth 2 marks</p>
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5 (b) The provision of physical activity in UK schools has changed over time.

What were the characteristics of physical education in state schools in the post-World War II period before the introduction of the National Curriculum? (4 marks)

<ul style="list-style-type: none"> A. Moving and Growing/Planning the Programme B. Varied content/gymnastic/dance/games skills; C. Element of play; D. Better facilities /equipment/apparatus; E. Recognition of different ages; F. Link between mind and body/physical & mental benefits; G. Use of group work; H. Decentralised lesson/more freedom for teachers/(PE) teachers trained/qualified; I. Teacher relate to individuals/interaction/less command style/more discovery/child-centered/Freedom of Movement; J. More enjoyable/fun; 	<ul style="list-style-type: none"> B. Accept increased range of activities or named examples D. Accept new buildings
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5 (c) Modern day state schools have expanded their physical education curriculum to include ‘outdoor and adventurous activities’.

What are the benefits that young people may gain as a result of experiencing activities such as rock climbing and canoeing? (4 marks)

<ul style="list-style-type: none"> A. Health and/or fitness; B. Develop motor skills/physical skills; C. Leadership/decision making/taking responsibility/safety; D. Personal skills/self esteem/well being/self awareness/knowing strengths and weaknesses/personal limits/confidence/survival skills; E. Social skills/team work/co-operation/working with others/communication/relying on others; F. Later life/career/active leisure/qualifications/lifelong learning; G. Appreciation of natural environment – countryside/conservation issues/etc/escapism 	<ul style="list-style-type: none"> D. Different from B! E. Different from B!
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- 6 (c) During the past ten years there has been an increase in membership of 'private' fitness clubs.

What are the **advantages** of being a member of a private fitness club?
(2 marks)

<p>Advantages</p> <ul style="list-style-type: none"> A. More choice of activities/facilities; B. Better quality facilities/equipment/personal trainers; C. Elitist/feel special/exclusive; D. Social benefits/meeting others; E. More opportunity to keep fit and healthy/less crowded; 	<ul style="list-style-type: none"> A. Idea of public or private C. Expensive/high fees – not an advantage E. Idea of ease of access/different from A
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- 6 (d) 'National governing bodies' (NGBs) try to provide 'equal opportunity' through advertising campaigns and by improving access to facilities.

Suggest other solutions that NGBs could use to overcome discrimination and to increase participation in physical activity.
(4 marks)

<ul style="list-style-type: none"> A. Develop specific <u>policies</u> to target minority groups/community projects/sport equity targets; B. Target funding at grass roots for minority groups; C. More minority sport development officers (SDOs)/employment opportunities; D. More minority coaches; E. Concentrate resources in inner city/socially disadvantaged areas; F. Make activities more available/attractive/classes for specific groups; G. Charge/lower admission/membership cost/taster days H. Change attitudes/raise awareness/use of role models; 	<p>Do not accept campaigns; is in the question</p> <p>Minority groups are ethnic, women, low socio-economic and people with disabilities</p> <p>B. Do not credit funding unless qualified</p> <p>H. Do not accept increased media coverage</p>
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Section B**Question 7**

You have been asked to improve the fitness and skills of a group of AS level physical education students.

Describe how you would apply the 'FITT principles' **and** 'specificity' to improve fitness.

Explain how the characteristics of the learner **and** the situation may influence your decision to use 'command style' teaching to improve the skills of the group.

(12 marks)

<p>FITT</p> <p>A. Overload – work/train harder than normal;</p> <p>B. Causes adaptations/body adapts;</p> <p>C. Frequency – train more often;</p> <p>D. Intensity – train harder;</p> <p>E. Type – use different forms of exercise/activity;</p> <p>F. Time/duration – train for longer;</p> <p>Specificity</p> <p>G. Use same energy system/aerobic/anaerobic;</p> <p>H. Use same muscle fibre-type/slow/fast-twitch;</p> <p>I. Use similar skills/movements;</p> <p>J. Use similar intensity to activity;</p> <p>K. Use similar duration/time to activity;</p> <p>Command style – depends on:</p> <p>L. Use for <u>cognitive</u> learner;</p> <p>M. Use when learner lacks fitness;</p> <p>N. Use if learner lacks motivation;</p> <p>O. Use if teacher/coach has limited experience/lacks confidence;</p> <p>P. Use if class misbehaves/hard to control/disruptive;</p> <p>Q. Use with large numbers to teach;</p> <p>R. Use when little equipment/time;</p> <p>S. Use if skill has element of risk/dangerous/safety concerns;</p> <p>T. Use if skill is highly complex/difficult;</p>	<p>Answers must state principles are applied to exercise</p> <p>E – 2 named types</p> <p>Do NOT accept similar to sport</p> <p>Answers must state under what circumstances command style is to be used</p> <p>L. key word</p>
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Mark scheme

Band Range	Band descriptors
10-12	<ul style="list-style-type: none"> • Addresses all aspects of question, demonstrating wide range of depth and knowledge • Expresses arguments clearly and concisely • Good use of examples to support answer • Few errors in their spelling, punctuation and grammar, and correct use of technical language
7-9	<ul style="list-style-type: none"> • Addresses most aspects of question, demonstrating clear level of depth and knowledge • Attempts to express arguments clearly and concisely • Uses examples to support answer • Few errors in their spelling, punctuation and grammar, and correct use of technical language, although sometimes inaccurately
4-6	<ul style="list-style-type: none"> • Addresses some aspects of question, but lacks sufficient depth and knowledge • Limited attempt to develop any arguments or discussions, normally vague or irrelevant • Attempts to use examples although not always relevant • Errors in spelling, punctuation and grammar, and limited use of technical language
1-3	<ul style="list-style-type: none"> • Addresses question with limited success • Little or no use of examples • No attempt to develop argument or discussions • Major errors in their spelling, punctuation and grammar, and little use of technical language