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# Physical Education

PHED1 Opportunities for and the Effects of Leading a Healthy and Active Lifestyle

Mark scheme

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2580  
June 2016

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Version 1.0: Final Mark Scheme

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Assessment Writer.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from [aqa.org.uk](http://aqa.org.uk).

**Section A**

**Applied Exercise Physiology**

**1 (a) (i)**

<p><b>A</b> BMI measures body composition  <b>B</b> BMI measures body fat  <b>C</b> BMI measures bone density  <b>D</b> BMI measures muscle mass</p>	<p>Accept <b>A, B, C</b> or <b>D</b></p>
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**[1 mark] AO1**

**1 (a) (ii)**

<p>A. Health – social, mental <u>and</u> physical well-being  B. Fitness – the ability to carry out everyday tasks <u>without</u> undue fatigue/the ability to the meet/cope with the demands of the environment</p>	<p>B. everyday tasks must link to fatigue</p>
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**[2 marks] AO1**

**1 (a) (iii)**

<p>A. <u>Smoking</u> – reduces lung/oxygen transport capacity/causes lung cancer/heart disease/stroke  B. (Lack of) <u>exercise</u> – obesity/reduced flexibility/strength/mobility issues /increased blood pressure/heart disease/diabetes  C. <u>Alcohol/drugs</u> – damages liver/heart disease/cancer/diabetes/depression  D. Work-life balance – stress  E. (Lack of) sleep – fatigue/stress  F. Over-training – long term injury</p>	<p>Accept any named disease.   B. Also accept inactivity or equivalents for exercise.   Do not accept answers relating to diet, eg supplements or fitness</p>
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**[2 marks] AO3**

**1 (b)**

<p>A. One cell thick – <u>short</u> route for diffusion  B. Large surface area – contact area/opportunity/surfaces for diffusion  C. Narrow diameter – <u>slow</u> passage of red blood cells/single file</p>	<p>B. Accept description of diffusion  B. Don't accept bigger area / increased diffusion   Accept alternative explanations</p>
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**[3 marks] AO1**

1 (c)

<p>A. Process of <u>diffusion</u> - high to low concentrations/partial pressure (down a concentration gradient)</p> <p><b>Oxygen</b></p> <p>B. <u>Partial pressure/PO<sub>2</sub>/concentration</u> higher in blood (100) <u>and</u> lower in muscle (40)</p> <p>C. Moves/diffuses from blood/capillary <u>to</u> muscle</p> <p><b>Carbon Dioxide</b></p> <p>D. <u>Partial pressure/PCO<sub>2</sub>/concentration</u> higher in muscle (46) <u>and</u> lower in blood (40)</p> <p>E. Moves/ diffuses from muscle <u>to</u> blood/capillary</p>	<p>Must state oxygen.</p> <p>Must state carbon dioxide.</p>
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[4 marks] AO3

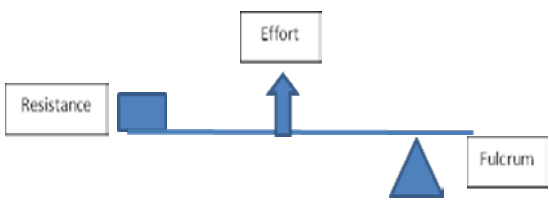
2 (a)

Joint Action	Main agonist	Type of isotonic contraction
A. Flexion	B. Triceps (brachii)	C. Eccentric

Accept first answer only.

[3 marks] AO1

2 (b)

<p>A. Resistance/Effort/fulcrum</p> <p>B. Drawn in correct order</p> 	<p>A. Also accept pivot (fulcrum), load (resistance), force (effort).</p> <p>Do not accept terms without a lever drawn</p> <p>Accept reverse</p> <p>Do not accept letters only (F R E)</p> <p>Disregard directional arrows.</p>
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[2 marks] AO1

**2 (c) (i)**

<p><b>Identification of location and change</b></p> <p>A. Coronary vessels - <u>Increase</u> in blood flow          B. Skin - <u>Increase</u> in blood flow          C. Stomach - <u>Decrease</u> blood flow</p> <p><b>Explanation</b></p> <p>D. (coronary vessels)To allow the heart to beat faster/more powerfully          E. (skin)Temperature regulation/get rid of heat/cool down          F. (stomach) Blood redistributed away from stomach to where it is needed</p>	<p>Accept first two locations only.</p> <p>Must state location for points A, B &amp; C.</p> <p>E. Not to sweat</p> <p>Only credit D, E &amp; F if linked to A, B &amp; C.</p>
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**[4 marks] AO3**

**2 (c) (ii)**

<p>A. Increase in CO<sub>2</sub> levels/acidity/decrease in pH <u>detected by</u> chemoreceptors/movement of joints/tendons <u>detected by</u> mechanoreceptors/proprioceptors          B. Message sent to vasomotor centre/medulla oblongata          C. Increase in impulses from the medulla <u>via the</u> sympathetic nervous system/adrenalin released          D. Pre-capillary sphincters control blood flow          E. <u>Vasodilation</u> to areas needing more blood/muscles/coronary vessels/skin          F. <u>Vasoconstriction</u> of areas not needing so much blood/kidneys/liver/gut</p>	<p>Accept alternative words for detected, eg picked up</p> <p>D. Pre-capillary sphincter must be qualified</p> <p>E &amp; F must be explained</p>
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**[3 marks] AO1**

**Skill Acquisition**

**3 (a) (i)**

A. self-paced – discrete – gross	
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[1 mark] AO1

**3 (a) (ii)**

<p>A. Involving <u>large</u> muscle groups                  B. Involving <u>large</u> (range of) movement</p>	<p>A. Do not accept lots of muscles                   Do accept fine if justified i.e. in relation to the ball toss.</p>
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[1 mark] AO1

**3 (b) (i)**

<p>A. Receives information/stimuli from display/surroundings/environment/senses                  B. Eg <u>sees</u> position of opposition/<u>hears</u> a shout from crowd                  C. selective attention – Information is filtered/disregards irrelevant information/selects relevant information                  D. Prevents information overload                  E. Passes <u>relevant</u> information to the short-term memory</p>	<p>Do not accept characteristics of the STSS                   E. Accept alternative words for relevant, eg important</p>
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[3 marks] AO1

**3 (b) (ii)**

<p>A. <u>Simple reaction time</u> – one stimulus <u>and</u> one possible response                  B. <u>Choice reaction time</u> – numerous stimuli <u>and/or</u> responses</p> <p>C. Choice reaction time more common                  D. Requires decisions                  E. Tennis mainly open skills/unstable environment/constantly changing/                  F. Mainly requires externally paced skills/reacting to other opponents</p>	<p>Must state which type of reaction time they are defining.</p> <p>C-F sub max 2 marks                  D. Don't accept choices as an alternative to decisions.                  E. Relates to many stimuli/opponent                  F. Relates to many responses/the player</p> <p>Do not accept examples from team games</p>
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**[2 marks] AO1**  
**[2 marks] AO3**

**3 (c)**

<p>A. Intrinsic – (desire/want) from within/internal                  B. Extrinsic – from external sources/outside of the player                  C. (Extrinsic) <u>tangible</u> – physical/eg trophies/rewards                  D. (Extrinsic) <u>intangible</u> – not physical/eg praise</p>	
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**[3 marks] AO1**

**4 (a)**

<p>A. Cognitive (stage)                  B. Performer lacks <u>mental image</u>/allows the performer to form <u>mental image</u>                  C. To develop understanding of relationships between sub-routines/whole movement pattern                  D. Learns through observing/ observational learning/Social learning theory</p>	<p>Sub max 1 mark</p>
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**[1 mark] AO1**  
**[1 mark] AO3**

**4 (b) (i)**

<ul style="list-style-type: none"> <li>A. Performer not physically ready/task too difficult at this stage</li> <li>B. Performer lacks ability to develop/modify current skills/reached potential</li> <li>C. Fatigue/lack of fitness</li> <li>D. Still developing mental model of more complex skill</li> <li>E. Boredom/tedium/<u>lack of</u> motivation</li> <li>F. <u>Poor/low quality</u> coaching/teaching/earlier faulty learning</li> <li>G. Goals too high /not challenging enough</li> </ul>	<p>Do not accept injury</p>
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**[3 marks] AO1**

**4 (b) (ii)**

<ul style="list-style-type: none"> <li>A. Distributed sessions/rest/recovery periods</li> <li>B. Reset goals/make tasks more challenging</li> <li>C. Offer extrinsic rewards/encouragement/praise/positive reinforcement</li> <li>D. Using mental rehearsal/imagery/visualisation</li> <li>E. Provide feedback/visual guidance</li> <li>F. Use of whole-part-whole/part method/breaking the skill down.</li> <li>G. Ensure performer focuses on appropriate cues</li> <li>H. Make practices more varied/more interesting/fun/enjoyment</li> <li>I. Make performer fitter</li> <li>J. Different coach/teaching style</li> </ul>	<p>C. Accept other examples of extrinsic rewards</p>
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**[4 marks] AO3**

**4 (c)**

<ul style="list-style-type: none"> <li>A. <u>(Knowledge of) initial/environmental conditions and(Knowledge of) response specifications/response/movement demands</u></li> <li>B. (Initial conditions) Where am I/hear/feel/what's happening?</li> <li>C. (Response specification) What is expected/required/what should I do?/what motor programme?</li> <li>D. (Initial conditions) E.g. Where are teammates?/(Response specification) - E.g. Which pass would be best?</li> </ul>	
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**[3 marks] AO3**



**Opportunities for Participation**

**5 (a)**

<p>A. Competitive/involves competition/ objective to win/serious <u>end product</u>                  B. Tactical/strategic element                  C. <u>Well defined</u> rules/set boundaries/time/number of players/kit                  D. Institutionalised/organised/officials/NGB/clubs/structured/leagues/fixtures                  E. Can involve rewards/accept eggs                  F. Performance of complex skills/skilful                  G. Amateur <u>and</u> professional                  H. Involves coaching/training/commitment</p>	<p>Serious is too vague                  C. Do not accept rules on its own</p>
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**[3 marks] AO1**

**5 (b)**

<p>A. Lottery funded/run by Sport England                  B. Aimed at 14-25 year olds/now 11-25 year olds                  C. 6-8 weeks/free coaching/subsidised coaching                  D. Supports continued involvement after the project/exit routes to clubs                  E. Inclusive to all/targets a variety of different social groups/disabilities/ethnic minority groups/disengaged with sport</p>	
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**[2 marks] AO1**

**5 (c)**

<p>A. (Stereotyping – Negative image/belief shared by society) channelling females away from sport/certain types of sport.                  B. (Discrimination – to act on a prejudice/give unfair treatment) less access to clubs/coaches</p>	<p>A. Accept suitable examples to explain stereotype, eg don't want to get sweaty or gendered stereotypes such as rugby isn't for women                   Do not accept definitions of stereotyping and discrimination</p>
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**[2 marks] AO3**



**6 (c)**

<p><b>Content</b></p> <ul style="list-style-type: none"> <li>A. Dance/<u>educational</u> gymnastics/agility exercises/games/range of activities</li> <li>B. Expressive/creative</li> <li>C. Apparatus/use of equipment</li> <li>D. Active/energetic/use of space</li> <li>E. Educational focus</li> </ul> <p><b>Delivery</b></p> <ul style="list-style-type: none"> <li>F. Heuristic/guidance/discovery/observational role/problem solving/child centred</li> <li>G. Group work/working together</li> <li>H. Interaction between teacher and pupil</li> <li>I. Work with individuals rather than whole class</li> <li>J. Teachers devise own work/decentralised/Government provided guidance/resources</li> </ul>	<p>Must describe the programme not what it isn't i.e. do not accept less command</p> <p>Sub max 3 marks</p> <p>Sub max 3 marks</p>
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**[5 marks] AO1**

**Section B****7**

Read the whole response and identify the points made from the indicative content in the mark scheme. The number of correct points made in the response determines the band that it falls into. Once the band has been identified, use the band descriptors to determine whether to place the response in the top, middle or lower end of the band, based on the overall quality. This is dependent on the explanation of the points made and the linking of those points to form a coherent response. Marks can be awarded at the higher end of the band level if specific points are discussed in greater depth. A judgement has to be made on depth versus breadth.

If a response is limited to one part of the question only, that response can only access the lowest mark in the relevant band awarded for the number of points.

<b>Band range</b>	<b>Band descriptors</b>	<b>Number of points</b>
<b>Level 4</b> 9 – 10 marks	<b>Very good response</b> Demonstrates a wide range of knowledge in substantial depth  Excellent linking of knowledge and development of points, with application to applied situations  Correct use of technical language  Addresses all areas of the question for top of band  If response is limited to one part of the question, maximum 9 marks	Minimum of 13 points to get into the mark band
<b>Level 3</b> 6 – 8 marks	<b>Good response</b> Demonstrates a range of knowledge in reasonable depth  Good linking of knowledge and development of points, with some application to applied situations  Generally correct use of technical language with minor inaccuracies  Addresses most areas of the question  If response is limited to one part of the question, maximum 7 marks	Minimum of 9 points to get into the mark band
<b>Level 2</b> 3 – 5 marks	<b>Basic response</b> Demonstrates some knowledge in some depth  Some linking of knowledge and development of points, with limited application to applied situations  Some use of technical language  Addresses some areas of the question  If response is limited to one part of the question, maximum 4marks	Minimum of 5 points to get into the mark band

<b>Level 1</b> 1 – 2 marks	<b>Limited response</b> Demonstrates a limited range of knowledge in limited depth  Limited linking of knowledge and development of points, which are vague or irrelevant, with little/no application to applied situations  Limited use of technical language  Addresses the question with limited success  If response is limited to one part of the question, maximum 1 mark	Minimum of 1 point to get into the mark band
<b>Level 0</b> 0 marks	Addresses no aspect of the question	0 points

### Quality of Written Communication (QWC)

Once you have awarded a mark for the theoretical content, up to two further marks can be awarded for the QWC. This mark is determined by the accuracy of the spelling, punctuation and grammar of the overall response, and can move the response into the above band. Use the QWC descriptors (below) to help guide your judgement.

Where responses have no creditworthy material from the indicative content, then that response cannot be awarded any QWC marks.

Mark Awarded	Mark Descriptor
2 marks	Few errors in spelling, punctuation and grammar
1 mark	Some errors in spelling, punctuation and grammar
0 mark	Major errors in spelling, punctuation and grammar

<p><b>Frequency</b></p> <ul style="list-style-type: none"> <li>A. Gradually <u>increase</u> the <u>number</u> of sessions completed per week/or equivalent example</li> <li>B. <u>Increase number</u> of work periods in a set/number of sets</li> <li>C. <u>Decrease number</u> of rest periods</li> </ul> <p><b>Intensity</b></p> <ul style="list-style-type: none"> <li>D. Gradually <u>increase</u> how hard you train/work period/weight/speed/distance</li> <li>E. Use Borg scale/percentage of one rep max/ percentage of max heart rate</li> <li>F. Example of increased weight/speed/distance</li> </ul> <p><b>Time</b></p> <ul style="list-style-type: none"> <li>G. <u>Increase</u> the <u>time</u> in which you work/or equivalent example</li> <li>H. <u>Decrease</u> the <u>time</u> of rest periods</li> </ul> <p><b>Type</b></p> <ul style="list-style-type: none"> <li>I. Method relevant/specific to the area of fitness/sport the performer wishes to improve or equivalent example e.g. continuous training <u>for a</u> marathon runner</li> <li>J. Adapt type of training with reason</li> </ul> <p><b>Extrinsic Feedback Advantages</b></p> <ul style="list-style-type: none"> <li>K. Easy to give</li> <li>L. Good for all stages of learning</li> <li>M. Cognitive learners rely on this type of feedback</li> <li>N. Cognitive learners – <u>general</u> feedback/knowledge of results/ Lots of errors so where to improve/strengths and weaknesses</li> <li>O. Autonomous learners – <u>specific/detailed</u> feedback/knowledge of performance</li> <li>P. Focuses attention/motivating/increases confidence</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>Q. Information overload if given too much</li> <li>R. Difficulty in understanding/poor delivery by coach/incorrect feedback leads to poor performance</li> <li>S. Time consuming</li> <li>T. Can be boring/lose its power if too much</li> <li>U. Performer can become over-reliant on feedback (given during/after training session)</li> <li>V. Do not develop own kinaesthetic awareness</li> <li>W. If negative can demotivate</li> </ul>	<p>Do not credit a definition of the FITT principles – must be their application</p> <p>A-C must be clear that it is number G-H must be clear that it is time</p> <p>Do not accept points that are not linked to specific component of FITT</p> <p>E. How they will measure intensity F. Must qualify with units I. Must link method of training with relevant component of fitness and/or sport J. Must be qualified as to why the type of training has changed</p> <p>M-O. Accept equivalent terms for cognitive and autonomous</p>
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[6 marks] AO1  
[6 marks] AO3