



# **Mark Scheme (Results)**

Summer 2017

Pearson Edexcel GCSE  
In Physical Education  
(5PE0) Paper 01

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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.

## Section A: Computer Marked

Question Number	Answer	Mark
<b>1a</b>	<b>C</b> Increased links between schools and sports clubs	<b>1</b>
Question Number	Answer	Mark
<b>1b</b>	<b>B</b> Flexibility	<b>1</b>
Question Number	Answer	Mark
<b>1c</b>	<b>B</b> Power	<b>1</b>
Question Number	Answer	Mark
<b>1d</b>	<b>C</b> Standing broad jump	<b>1</b>
Question Number	Answer	Mark
<b>1e</b>	<b>B</b> Cardiovascular fitness	<b>1</b>
Question Number	Answer	Mark
<b>1f</b>	<b>D</b> Vitamins, minerals, fibre, water, macronutrients	<b>1</b>
Question Number	Answer	Mark
<b>1g</b>	<b>C</b> Correct clothing	<b>1</b>
Question Number	Answer	Mark
<b>1h</b>	<b>C</b> Increase in heart rate	<b>1</b>
Question Number	Answer	Mark
<b>1i</b>	<b>A</b> A headstand in a yoga class	<b>1</b>
Question Number	Answer	Mark
<b>1j</b>	<b>A</b> Ball and socket joints allow rotation	<b>1</b>

**Section B: Describe how physical activity can be used to improve cooperation**

<b>Question 2</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	<p>A <b>linked description</b> that makes reference to an aspect of sport which allows development of cooperation:</p> <ul style="list-style-type: none"> <li>• By making people work together (1) through teamwork/playing in a team (1)</li> <li>• When you play team sports (1) you learn to work with other people/you work towards a common goal (1)</li> <li>• When you play a sport you need to agree tactics (1) which makes you work together (1)</li> <li>• In sport you try to win (1) which means you have to work with others to achieve this (1)</li> </ul>	<p>'telling' people what to do</p> <p>Communicating with others (unless further links to working with others, e.g. communicating about tactics)</p> <p>Other social benefits of sport e.g. friendships</p>	<p><i>1 mark for working with others/trying to achieve a common goal</i></p> <p><i>1 mark for how sport makes you work with others (e.g. through discussing tactics/playing in a team/teamwork)</i></p>	<b>1x2</b>	<b>(2)</b>

<b>Question 3 (a)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	<p>Credit for correct identification of:</p> <ul style="list-style-type: none"> <li>• Image/media (coverage)</li> </ul>	<p><b>TV/Television/Telly/Press</b></p> <p><b>Role models</b></p>	<b>Accept first answer only</b>	<b>1x1</b>	<b>(1)</b>

Question 3 (b)	Answer	Do not accept	Additional Guidance	Marks	Total
	Credit for correct identification of: <ul style="list-style-type: none"> <li>Cultural/culture/disability</li> <li>Resources/access/accessibility/availability</li> </ul>	<b>Facilities Health and wellbeing Opportunities</b>	<b>Accept first answer only</b>	<b>1x1</b>	<b>(1)</b>

Question 3 (c)	Answer	Do not accept	Additional Guidance	Marks	Total
	Credit for correct identification of: <ul style="list-style-type: none"> <li>Socio-economic(s)/cost</li> </ul>	<b>Afford/Price Economic Financial issues</b>	<b>Accept first answer only</b>	<b>1x1</b>	<b>(1)</b>

Question 4 (a)	Answer	Do not accept	Additional Guidance	Marks	Total
	A <b>linked description</b> that makes reference to the use of balance in gymnastics: <ul style="list-style-type: none"> <li>A gymnast would need to use balance to hold a position/remain stable/keep still (1), for example a handstand (1)</li> <li>So the gymnast does not fall from the apparatus/wobble during the routine (1) for example when walking along the beam/landing a jump (1)</li> </ul>	<b>Not just to 'perform better'</b>  NB Example must match type of balance being described.	<i>Accept other appropriate examples of the use of static or dynamic balance in gymnastics</i>  <i>Can have example mark without general description provided example clearly requires balance, e.g. need balance in a handstand.</i>	<b>1x2</b>	<b>(2)</b>

Question 4 (b)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked description</b> that makes reference to the use of balance in rugby:</p> <ul style="list-style-type: none"> <li>• A rugby player would need balance to maintain their footing/stop them slipping/<b>stay on their feet/upright</b> (1) when dodging an opponent/<b>when being tackled</b> (1)</li> <li>• A rugby player would need to use balance to hold/stay in their position (1) in the scrum (to stop it collapsing) (1)</li> </ul>	<p>NB Example must match type of balance being described.</p>	<p><i>Accept other appropriate examples of the use of static or dynamic balance in rugby</i></p> <p><i>Can have example mark without general description provided example clearly requires balance, e.g. need balance in the scrum to stop it collapsing.</i></p> <p><i>Can accept 'in a line out' PROVIDED it is qualified.</i></p>	<p><b>1x2</b></p>	<p><b>(2)</b></p>





Question 6 (a)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>Correct identification of specificity or type and linked explanation stating how specificity has been applied:</p> <p>Any <b>one</b> from:</p> <ul style="list-style-type: none"> <li>• Specificity</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• Type (1)</li> </ul> <p><b>AND</b> any <b>one</b> from:</p> <ul style="list-style-type: none"> <li>• because they are swimmers and they train in a pool</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• because the training matches the needs of the <u>sport</u>/is specific to the sport/swimming</li> </ul> <p><b>OR</b></p> <ul style="list-style-type: none"> <li>• because the training will target the correct muscles/energy systems/areas of fitness/skills for their <u>sport</u></li> </ul>	<p>Specific as alternative to specificity for first marking point</p> <p>Specific to their needs/them (i.e. must be to their sport)</p>	<p>If principle is omitted or incorrect can still go on to gain second marking point. E.g. Individual needs (0) as they are swimmers and it is specific to their sport.' (1)</p>	<p><b>1x2</b></p>	<p><b>(2)</b></p>

Question 6 (b)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>Correct identification of rest and recovery and linked explanation stating how rest and recovery has been applied:</p> <ul style="list-style-type: none"> <li>• Rest and recovery (1) to allow his muscles to repair (1).</li> <li>• Rest and recovery (1) to allow his body to recover/rest (1).</li> <li>• Rest and recovery (1) to give time for adaptations to take place/injury to heal/energy to be restored</li> <li>• Frequency (1) as he is telling us how many days a week/how often he is training (1)</li> </ul>	<p><b>Individual needs as insufficient information in question to select this</b></p> <p><b>Injury prevention (UNLESS overtraining)</b></p>	<p>If principle is omitted or incorrect can still go on to gain second marking point. E.g. Individual needs (0) so muscles can rest (1)</p> <p>Accept other appropriate reasons for allowing recovery days between sessions for second marking point</p>	<p><b>1x2</b></p>	<p><b>(2)</b></p>

<b>Question 7 (a)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	<p>Credit each aspect of SMART to a maximum of two marks:</p> <ul style="list-style-type: none"> <li>• To improve her sit and reach rating (from average) to good (1) within the next 3 months/before the next competition (in 3 months-time) (1)</li> <li>• To improve her flexibility by 1cm (1) in a month (1)</li> <li>• To increase all ratings for the tests in Table 1 by 1 level (1) in a month (1)</li> </ul>		<p><i>To gain both marks:</i></p> <ul style="list-style-type: none"> <li>- <i>Targets must have a time frame (accept any time frame under or equal to 3 months)</i></li> <li>- <i>Targets must have a measurable aspect, e.g. sit and reach from average to good or increase sit and reach by 5cm (accept any reasonable range)</i></li> </ul> <p><i>Targets may relate to any of the tests (or the component of fitness they test) stated in Table 1</i></p>	<b>1x2</b>	<b>(2)</b>

Question 7 (b)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> stating why SMART target setting is effective and 1 mark for explanation how this helps the performance:</p> <p>SMART targets:</p> <ul style="list-style-type: none"> <li>• provide a clear aim/focus/<b>goal</b> (1) so Yulia can plan her training /can concentrate on the right things in her training/weaknesses (1)</li> <li>• provide a challenge/something to achieve/aim/focus/<b>goal</b> (1) to motivate Yulia to train (1)</li> <li>• are motivating (1) as they set a deadline /as Yulia can see progress /so make Yulia work harder to improve (1)</li> <li>• give a deadline (1) so Yulia doesn't put off her training</li> <li>• allow Yulia to check her training is working (1) because she can see whether she is improving/can see progress</li> <li>• means training target is possible (1) so the training is not demotivating/is motivating (1)</li> <li>• if a target is reached (1) this will motivate Yulia to do more/ to be even better (1)</li> </ul>	<p><i>No credit for just stating principle(s) of SMART.</i></p>	<p><i>Can gain second marking point even if first not achieved.</i></p>	<p><b>1x2</b></p>	<p><b>(2)</b></p>

Question 8a	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation: one mark</b> for a statement about continuous training or a requirement of marathon running, <b>one mark</b> for how this links to marathon running or continuous training and <b>one mark</b> for the impact of this on performance:</p> <ul style="list-style-type: none"> <li>• Continuous training helps develop CV fitness (1) a marathon runner needs CV fitness (1) as they will be able to maintain race pace for longer/improving their race time (1)</li> <li>• To maintain running throughout the marathon the runners need a good supply of oxygen (1) continuous training develops the runner's ability to supply oxygen (1) therefore the runner can work aerobically for longer/delay fatigue so they can continue to run in the race (1)</li> </ul>	<p><i>Training is specific to event – requires explanation of the specificity</i></p> <p><i>More than one statement about continuous training or a requirement of marathon running</i></p> <p><i>Run for longer</i></p>	<p><i>Can accept points from a mixture of these bullet points provided points are linked, e.g. continuous training helps develop their CV fitness (1) which will develop the runner's ability to supply oxygen (1) delaying fatigue in the race so they get a better time (1)</i></p> <p><i>Example statements about continuous training – maximum one mark:</i></p> <ul style="list-style-type: none"> <li>• Running without a break</li> <li>• Running continuously for at least 20 minutes</li> <li>• Running at a constant pace for a long period of time</li> </ul>	<b>1x3</b>	<b>(3)</b>

Question 8b	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> that makes a statement about interval training or a requirement of sprinting, how this links to sprinting or interval training and the impact of this on performance:</p> <ul style="list-style-type: none"> <li>Interval training helps develop speed (1) which a sprinter needs as their event is over very quickly (1) with improved speed they will be able to finish the race in a shorter time (1)</li> <li>Interval training uses <u>sets</u> of high intensity work (1) this means the sprinter will work at a high intensity/anaerobically (1) so they can develop their speed/run <u>faster</u> in the race (1)</li> <li>Sprinters need high levels of speed (1) which is developed through interval training (1) so they can finish the race in as quick a time as possible (1)</li> </ul>	<p><i>Training is specific to event – requires explanation of the specificity</i></p> <p><b>Must imply repeated e.g. short bursts</b></p> <p><b>Impact as 'to win' or run 'fast'</b></p>	<p><i>Can accept points from a mixture of these bullet points provided points are linked.</i></p> <p><i>Can also accept power as well as speed</i></p> <p><i>Credit other statements about interval training, e.g. sets of work and then periods of rest.</i></p>	<p><b>1x3</b></p>	<p><b>(3)</b></p>

Question 9	Answer	Do not accept	Additional Guidance	Marks	Total
	Credit for correct identification of: <ul style="list-style-type: none"> <li>(Working/active) muscles (1)</li> <li>Digestion/digestive system/the stomach/ the gut (1)</li> </ul>	<ul style="list-style-type: none"> <li>Body (as encompasses all areas)</li> <li>Heart (unless states muscular tissue of heart/myocardium)</li> </ul>	<i>Can gain second point even if first incorrect</i>  <i>Second bullet - credit any reference to digestion</i>	<b>2x1</b>	<b>(2)</b>

Question 10 (ai)	Answer	Do not accept	Additional Guidance	Marks	Total
	Credit for correct identification of: <ul style="list-style-type: none"> <li>Endomorph/endomorph</li> </ul> Accept phonetic spellings			<b>1x1</b>	<b>(1)</b>

Question 10 (aii)	Answer	Do not accept	Additional Guidance	Marks	Total
	Credit for correct identification of: <ul style="list-style-type: none"> <li>Ectomorph/ectomorph</li> </ul> Accept phonetic spellings			<b>1x1</b>	<b>(1)</b>

Question 10 (bi)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> that makes reference to an advantage of the body type and how a characteristic of this (endomorph) body type creates this advantage:</p> <ul style="list-style-type: none"> <li>• They have increased body weight/excess fat/being heavier/overweight therefore will be harder to throw/move (out of the ring) (1)</li> <li>• Stores large quantities of fat (1) making it easier for them to push opponent out of ring (1)</li> </ul>	<p>Answers relating to mesomorph/ectomorph</p> <p>Increased strength/power</p> <p>Bigger/larger</p> <p>Have fat (must be clear this is excess fat/more fat or equivalent)</p> <p>Lower centre of gravity unless qualified (i.e. due to heavier 'bottom half')</p> <p>Large body composition</p> <p>More weight (1) to put into the fight (0)</p>	<p><i>Credit additional characteristics of body type, e.g. narrow shoulders/wide hips but without link to appropriate advantage in event maximum 1 mark</i></p> <p><i>Can gain second marking point without the first</i></p>	<b>1x2</b>	<b>(2)</b>



Question 10 (bii)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> that makes reference to an advantage of the body type and how a characteristic of this (ectomorph) body type creates this advantage:</p> <ul style="list-style-type: none"> <li>• They are slim/light/less body weight/have a tendency not to store fat (1) therefore use less energy when running (1)</li> <li>• They are light/thin/have less weight to carry (1) so can run faster/clear the hurdles easier (1)</li> <li>• Higher centre of gravity/longer limbs (1) therefore easier to clear the hurdles/less power required to clear the hurdles (1)</li> <li>• (Tall) with longer limbs/legs (1) to increase stride length so can cover ground quicker (1)</li> </ul>	<p>Answers relating to mesomorph/ endomorph</p> <p>Run further</p>	<p><i>Credit additional characteristics of body type, e.g. narrow hips/shoulders but without link to appropriate advantage in event maximum 1 mark</i></p> <p><i>Can gain second marking point without the first</i></p>	<b>1x2</b>	<b>(2)</b>

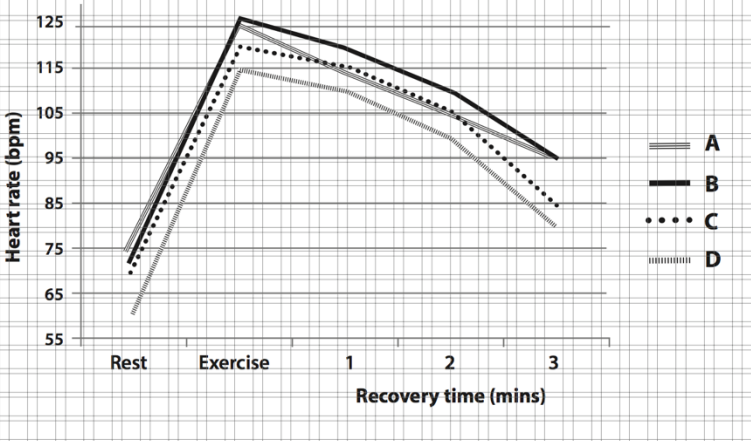
<b>Question 11 (a)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	Credit for correct identification of: <ul style="list-style-type: none"> <li>• Anabolic steroids</li> <li>• Steroids</li> <li>• Growth hormones</li> <li>• hGH</li> <li>• Human growth hormone</li> <li>• Peptide hormones</li> </ul> NB Accept any upper and/or lower case combination for hGH.			<b>1x1</b>	<b>(1)</b>

<b>Question 11 (b)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	Credit for correct identification of: <ul style="list-style-type: none"> <li>• Erythropoietin</li> <li>• EPO</li> <li>• Peptide hormones</li> <li>• Blood doping</li> </ul>			<b>1x1</b>	<b>(1)</b>

<b>Question 11 (c)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	Credit for correct identification of: <ul style="list-style-type: none"> <li>• Beta blockers</li> </ul>			<b>1x1</b>	<b>(1)</b>

<b>Question 12</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	Credit for correct identification of: <ul style="list-style-type: none"> <li>• RIC</li> </ul> E OR <ul style="list-style-type: none"> <li>• Rest, ice, compression, elevation/elevate OR</li> <li>• Rest, ice, comfortable support, elevation/elevate</li> </ul> OR <ul style="list-style-type: none"> <li>• PRICE</li> </ul>	Single component of procedure, e.g. rest		<b>1x1</b>	<b>(1)</b>

<b>Question (13a)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	Credit for correct identification of: <ul style="list-style-type: none"> <li>• D</li> <li>• Performer D</li> </ul>			<b>1x1</b>	<b>(1)</b>

Question 13 (b)	Answer	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> stating why the performer (D) is more likely to participate in regular aerobic training:</p> <ul style="list-style-type: none"> <li>Resting heart rate is <u>low/lower/lowest</u> of all (1) and recovery heart rate drops quickly (1) this will be due to <u>aerobic training /training adaptations/long-term effects of training</u>. (1)</li> <li><u>Lowest/lower/low</u> resting heart rate (1) therefore must take part in regular exercise as the heart doesn't need to beat as often (1) to transport the required oxygen around the body/to the muscles. (1)</li> </ul>	 <p>Can also accept working heart rate is the lowest</p> <p>NB can have two references to the graph and one adaptation, or one reference to the graph and two related adaptations to achieve 3 marks.</p> <p>To gain maximum marks, reference must be made to training adaptations, or an example of them to explain the link between the heart rate values on the graph and the likelihood of participating in regular aerobic training.</p> <p>No credit for saying they have a 'better' heart rate.</p> <p>No credit for reference to the aerobic training zone (as this is not known)</p>	<b>1x3</b>	<b>(3)</b>

Question 13 (c)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> of the antagonistic muscle action at the knee:</p> <ul style="list-style-type: none"> <li>• The (antagonistic muscles are the) quadriceps and hamstrings (1)</li> <li>• As one muscle contracts the other relaxes/as the agonist contracts the antagonist relaxes (1)</li> <li>• the hamstrings contract to flex the leg at the knee (1)</li> </ul> <p><b>OR</b></p> <p>the quadriceps contract to extend the leg at the knee (1)</p>	<p>Incorrect terminology:</p> <ul style="list-style-type: none"> <li>• Abbreviated terms for muscle names</li> <li>• For muscles must state contract/relax (not flex/extend).</li> <li>• For joints must state flexion/extension (not bend/straighten).</li> </ul>	<p><i>The response need not be written as three separate statements, e.g. The hamstrings act as the agonist and contract to flex the leg at the knee whilst the antagonist muscle the quadriceps relax. (3)</i></p> <p><i>Accept correct explanation of antagonistic muscle action at the ankle/hip <b>instead</b> of the knee if given</i></p>	<b>1x3</b>	<b>(3)</b>

Question 13 (d)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> stating a function of the skeletal system and its role in stepping during the Harvard step test:</p> <ul style="list-style-type: none"> <li>• Joints to allow movement (1) so that the leg can <u>flex</u> at the <u>knee</u> to step up/allows <u>flexion/extension</u> (at the knee) to allow stepping action (1)</li> <li>• Through muscle attachment (1) so that the muscles can pull on the bones causing movement (1)</li> <li>• Has levers/lever systems (1) so the <u>body weight</u> can be lifted on to the step more easily (1)</li> <li>• By providing support/structure (1) allowing them to take weight on one leg while they step (1)</li> </ul>	<p>Functions of protection, blood cell production, movement unless linked to muscle attachment</p> <p>Incorrect terminology:</p> <p>For joints must state flexion/extension (not bend/straighten)</p> <p>Reference to tendons/ligaments</p>	<p><i>Must be a linked explanation for two marks</i></p> <p><i>Credit examples linked to the ankle or hip</i></p> <p><i>Can gain second marking point without first</i></p>	<b>1x2</b>	<b>(2)</b>

<b>Question (14ai)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	Credit for correct identification of: <ul style="list-style-type: none"> <li>• Circuit</li> <li>• Circuit training</li> </ul> NB Accept: Circuits	Mixed training		<b>1x1</b>	<b>(1)</b>

<b>Question (14aii)</b>	<b>Answer</b>	<b>Do not accept</b>	<b>Additional Guidance</b>	<b>Marks</b>	<b>Total</b>
	Credit for correct identification of: <ul style="list-style-type: none"> <li>• Cross</li> <li>• Cross training</li> </ul>			<b>1x1</b>	<b>(1)</b>

Question 14 (b)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A <b>linked explanation</b> stating why a characteristic of Fartlek training would improve cross country running performance:</p> <ul style="list-style-type: none"> <li>• Fartlek training involves running at different intensities/change of pace (1) which Jacob would do in his event, for example going slower up hill/sprinting to overtake/ (1)</li> <li>• Fartlek training involves running over different terrain (1) in a race Jacob might need to run on grass, across paths or muddy areas (1)</li> <li>• Because it is a type of continuous training (1) which would help them develop their CV fitness (1)</li> </ul>	<p>Speed play unless qualified</p> <p>'matches cross country run''specific to cross country', unless further qualified</p> <p>Do not accept stamina/fitness</p>	<p>Can gain second marking point without first.</p> <p>Accept other examples of varied terrain in cross country</p> <p>Accept alternatives for CV fitness (not stamina)</p>	<b>1x2</b>	<b>(2)</b>



Question 14(c)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>A description of how the respiratory and cardiovascular systems work together to allow completion of the cross country race. Credit a maximum of <b>four</b> of the following:</p> <ul style="list-style-type: none"> <li>• Increased heart rate/breathing rate to supply more oxygen/requires <u>a lot of/plenty of/more</u> oxygen for the race (1)</li> <li>• The respiratory system/breathing takes air/oxygen into the body/breathe out CO<sub>2</sub> (1)</li> <li>• The cardiovascular system collects oxygen from the respiratory system/lungs/oxygen diffuses into the blood from the respiratory system (1)</li> <li>• The cardiovascular system transports <u>oxygen</u> to the muscles /<u>carbon dioxide</u> to the lungs/<u>waste products</u> from the working muscles (1)</li> <li>• The oxygen is used for energy to run the race (1).</li> <li>• The oxygen can be used to break down lactic acid/aid recovery <u>in</u> the race if he has worked anaerobically/delay fatigue (1)</li> <li>• Gas exchange occurs between the alveoli and capillaries/capillaries and the muscle (1)</li> </ul>	<p>Long term training effects</p> <p>Run for longer</p>	<p><i>Accept increased tidal volume as alternative to increased breathing rate</i></p> <p><i>Accept blood/red blood cells as alternate to cardiovascular system</i></p>	<p><b>1x4</b></p>	<p><b>(4)</b></p>

Question 14(d)	Answer	Do not accept	Additional Guidance	Marks	Total
	<p>An explanation of how smoking would impact on cross country performance:</p> <p>Any <b>ONE</b> of the following:</p> <ul style="list-style-type: none"> <li>• Damages the alveoli</li> <li>• Carbon monoxide carried by red blood cells rather than oxygen</li> <li>• Red blood cells can't carry as much oxygen</li> <li>• Increase blood pressure</li> <li>• Narrow <u>arteries</u></li> <li>• Decrease in lung function/capacity</li> <li>• Reduces the efficiency of gas exchange (1)</li> </ul> <p><b>And</b></p> <p>Any <b>ONE</b> of the following:</p> <ul style="list-style-type: none"> <li>• so <u>less</u> oxygen for <u>energy</u> production</li> <li>• so <u>less</u> oxygen causing <u>fatigue/tiredness</u> at a quicker rate</li> <li>• so <u>cannot</u> maintain <u>aerobic</u> respiration (1)</li> </ul>	<p>Less efficient respiratory system</p> <p>General long term health issues caused by smoking</p>	<p>Can credit second marking point without first.</p> <p>Accept decrease alveoli as alternative to damages.</p>	<b>1x2</b>	<b>(2)</b>

*Question 15	Answer
	Discuss the relative importance of muscular strength and reaction time for each of the performers competing in the activities shown in <b>Figure 7.</b> (gymnast and sprinter)

### Indicative content

#### **A – Simple statements about the components of fitness or their use in each activity.**

- Muscular strength is the amount of force a muscle can exert (against a resistance)
- Gymnasts need muscular strength to support their body weight
- Sprinters need muscular strength to exert force with their muscles
- Reaction time is the time between the presentation of a stimulus (and the onset of a movement)
- Gymnasts rarely need to use reaction time
- Reaction time is much more important to sprinters
- Sprinters need reaction time at the start of the race

#### **B – Developed statements linking importance of component or use to activity e.g.**

- Gymnasts need muscular strength to support their body weight (S) for example in a handstand/in the position in the picture (S+) so they can complete the required moves in the routine well (DS)
- Sprinters need muscular strength so they can exert force (S) (e.g.) propel themselves/push against the blocks at the start of the race (S+) (because) the greater force the better their start will be/better acceleration (DS)
- A gymnast might need reaction time if they make an error (S) because they will need to change what they had planned (S+) therefore they will need to think quickly to correct the error (DS)
- Sprinters need reaction time at the start of the race (S) as they need to respond to the starters gun (S+) so they can leave the blocks (as) quickly (as possible) (DS)

*Accept other accurate statements demonstrating ability to apply knowledge of importance of these components of fitness when participating in these sports.*

#### **C – Discussion of relative importance of components either within the activity or a comparison across activities e.g**

- (importance) Gymnasts rarely need to use reaction time (S) because their routines are pre-planned and practiced (S+) therefore they do not need to make instant decisions (DS)
- Although gymnasts rarely use reaction time (S) sometimes they will need to make an instant decision (S+) due to an error in their routine therefore it has some importance (DS)
- Due to the limited use of reaction time by a gymnast (S) muscular strength is much more important to them (S+)
- Reaction time is more important to sprinters than gymnasts (S) as if the sprinter does not have a good reaction time they will have to catch up their competitors (S+) whereas the gymnast does not have to start their routine immediately (DS)
- Strength is more important to a gymnast than a sprinter (S) because the gymnast needs to hold their body weight during routines (S+) whereas the sprinter needs more speed than strength to accelerate during the sprint to win their race (DS)
- Both strength and reaction time are important to the sprinter (S) as the 100m sprint is such a short race (S+) anything that slows them down will be bad for their performance as there is limited time to catch up (DS)

*Accept other accurate statements that discuss the relative importance of either component of fitness to the performers.*

<b>Level</b>	<b>Mark</b>	<b>Descriptor</b>
<b>Level 0</b>	0	No rewardable material
<b>Level 1</b>	1-2	<p>(i) A number of simple statements about the components of fitness, e.g. muscular strength is the amount of force a muscle can exert against a resistance</p> <p>(ii) A number of simple statements that link the components of fitness to the activity, e.g. Gymnasts need muscular strength to support their body weight</p> <p>Candidates will produce brief and narrative responses, making a limited number of simple statements, probably with limited reference to the question. Little knowledge and understanding of the range of requirements. Responses produced by candidates will be mostly generalised, and may not fully address the requirement of the question to discuss the relative importance of muscular strength and reaction time to the performers.</p> <p>Candidates' writing communicates ideas using everyday language, but lacks clarity and organisation. There will be frequent errors in candidates' spelling, grammar and punctuation.</p>
<b>Level 2</b>	3-4	<p>(i) Developed statements, i.e. simple statements that are expanded to progress the link between one of the components of fitness and its importance to the gymnast. E.g. Gymnasts need muscular strength to support their body weight (S) for example in a handstand (S+) so they can complete the required moves in the routine (D)</p> <p>(i) Developed statements, i.e. simple statements that are expanded to progress the link between one of the components of fitness and its importance to the sprinter. E.g. Sprinters need reaction at the start of the race (S) as they need to respond to the stimulus of the starters gun (S+) so they can leave the blocks as quickly as possible (DS)</p> <p>Basic (but accurate) conclusion in line with previous points.</p> <p>Candidates' responses will be mostly accurate and include relevant factual material. Some knowledge and understanding of the relevance of the components of fitness. Candidates will have addressed the requirement of the question to discuss the relative importance of muscular strength and reaction time for performers competing in the types of activity shown with some success. Candidates' writing communicates ideas with accurate use of appropriate terminology, and the organisation of the response shows some direction and control. There will be few errors in spelling, punctuation and grammar.</p>

<b>Level 3</b>	5-6	<p>(i) Developed statements (using relevant examples) balanced and succinct.</p> <p>(ii) Conclusion provided based on points raised</p> <p>Candidates will offer factually accurate and sustained responses that relate well to the focus of the question and successfully addresses the discursive demands. Sound knowledge and understanding of the components of fitness and their relative importance to both activities. The discussion will be supported by accurate factual material that is relevant to the question. Both components of fitness will be linked to the activities and the relevance to sporting performance will be evident with appropriate conclusions reached.</p> <p>Candidates' writing communicates ideas effectively using appropriate terminology, and organises material clearly and coherently. Spelling, punctuation and grammar will be accurate throughout the response.</p>
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Question 16*	Answer
	Discuss the possible effects of an active lifestyle on mental <b>and</b> physical health.

**Indicative content**

**A – Simple statements about health e.g.**

- Health is a state of complete mental, physical and social well-being not merely the absence of disease and infirmity
- A (healthy) active lifestyle is a lifestyle that contributes positively to all aspects of health and includes regular exercise and physical activity
- Three aspects to health: physical, social and mental
- Mental health can improve due to release of serotonin

**B – Developed statements linking regular physical activity to positive changes in mental or physical health e.g.**

- Exercise can increase our physical health due to the training adaptations that occur (S+) for example a drop in (resting) blood pressure (S+) which will reduce the risk of CHD (DS)
- Weight bearing exercise will increase bone density (S) which in turn increases bone strength (S+) therefore (increasing health by) reducing risk of osteoporosis
- Aerobic training can lead to an improved cardiovascular system (S) for example, a reduction in cholesterol in the arteries (S+) reducing the risk of CHD (DS)
- Exercise (helps our mental health as it) makes us feel good (S) due to release of serotonin (S+) so reducing stress/depression (if we exercise regularly) (DS)
- Can boost a person's self-esteem (S) due to a sense of achievement (S+) if they see an improvement in fitness/performance (DS)

*Accept other accurate statements demonstrating physical or mental health gains through regular exercise.*

**C – Developed statements linking regular physical activity to negative changes in mental or physical health e.g.**

- People can train too much/overtrain (S) leading to injury/sprains/strains (S+) because they do not allow enough recovery time between training sessions (DS)
- Training too often/overtraining (S) can affect the body's ability to fight off disease (S+) making the performer more susceptible to infection/colds/flu
- Too much training can lead to fatigue (S) because the person does not give themselves time for rest (S+) therefore the body does not have time to recover from the volume of exercise (DS)
- Some people will become addicted to exercise (S) needing to work harder and harder to get the same serotonin effect (S+) therefore overtrain/become stressed/depressed (DS)
- Some people can be over-competitive (S) and become angry/upset when they lose (S+) which could lead to depression (DS)

*Accept other accurate statements demonstrating negative impact on physical or mental health as a result of training too much/overtraining*

Level	Mark	Descriptor
<b>Level 0</b>	0	No rewardable material
<b>Level 1</b>	1-2	<p>(i) A number of simple general statements about health, e.g. health is the complete state of physical, mental and social well-being not merely the absence of disease</p> <p>(ii) A number of simple statements linking physical or mental health to exercise, e.g. <u>regular</u> exercise can increase our physical health</p> <p>Candidates will produce brief and narrative responses, making a limited number of simple statements, probably with limited reference to the question. Little knowledge and understanding of the range of requirements. Responses produced by candidates will be mostly generalised, and may not fully address the requirement of the question to discuss the possible effects of an active lifestyle on mental <b>and</b> physical health.</p> <p>Candidates' writing communicates ideas using everyday language, but lacks clarity and organisation. There will be frequent errors in candidates' spelling, grammar and punctuation.</p>
<b>Level 2</b>	3-4	<p>(i) Developed statements, i.e. simple statements that are expanded to progress the link between an active lifestyle and its positive impact on physical or mental health. E.g. <u>Regular</u> exercise can increase our physical health (S) because of the training adaptations that occur (S+) for example a drop in (resting) blood pressure (DS)</p> <p>(i) Developed statements, i.e. simple statements that are expanded to progress the link between an active lifestyle and its negative impact on physical or mental health. E.g. Some people will become addicted to exercise (S) needing to work harder and harder to get the same serotonin effect (S+) therefore overtrain/become stressed/depressed (DS)</p> <p>Basic (but accurate) conclusion in line with previous points.</p> <p>Candidates' responses will be mostly accurate and include relevant factual material. Some knowledge and understanding of the impact of an active lifestyle. Candidates will have addressed the requirement of the question to discuss the possible effects of an active lifestyle on mental <b>and</b> physical health with some success. Candidates' writing communicates ideas with accurate use of appropriate terminology, and the organisation of the response shows some direction and control. There will be few errors in spelling, punctuation and grammar.</p>

<b>Level 3</b>	5-6	<p>(i) Developed statements (using relevant examples) balanced and succinct.</p> <p>(ii) Conclusion provided based on points raised</p> <p>Candidates will offer factually accurate and sustained responses that relate well to the focus of the question and successfully addresses the discursive demands. Sound knowledge and understanding of the impact of regular activity on physical <b>and</b> mental health. The discussion will be supported by accurate factual material that is relevant to the question. Both aspects of health will be considered as will the positive and negative impact of activity on them with appropriate conclusions reached.</p> <p>Candidates' writing communicates ideas effectively using appropriate terminology, and organises material clearly and coherently. Spelling, punctuation and grammar will be accurate throughout the response.</p>
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