

Mark Scheme (Results)

Summer 2015

Pearson Edexcel GCSE
in Physical Education (5PE01) Paper 1
The Theory of Physical Education

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Section A: Computer Marked

Question Number	Answer	Mark
1a	B Manager	1
Question Number	Answer	Mark
1b	B Coordination	1
Question Number	Answer	Mark
1c	A Type	1
Question Number	Answer	Mark
1d	C Before planning a Personal Exercise Programme (PEP)	1
Question Number	Answer	Mark
1e	B 160	1
Question Number	Answer	Mark
1f	D Peptide hormones	1
Question Number	Answer	Mark
1g	A Diuretics	1
Question Number	Answer	Mark
1h	C correct diet can improve cholesterol levels	1
Question Number	Answer	Mark
1i	C Alcohol increases blood pressure	1
Question Number	Answer	Mark
1j	A The maximum of amount of air you can forcibly breathe in and out per breath	1

Section B: ePEN Marking

Question 2		Answer	Marks	Total
2	(a)	<p>A linked explanation that includes the following:</p> <p>Mental:</p> <ul style="list-style-type: none"> • Serotonin causes a feel good factor/makes you feel good (1) <p>improving mental health/good for mental health/ decreases depression/stress (1)</p> <p>Physical</p> <ul style="list-style-type: none"> • As serotonin makes you feel good (1) <p>you exercise more which can improve physical health/reduce risk of diabetes/equiv (1)</p> <p>Social</p> <ul style="list-style-type: none"> • As serotonin makes you feel good (1) <p>you exercise more allowing you to make more friends which improves social health (1)</p>	1x2	(2)
	(bi)	Social	1x1	(1)

Question 2		Answer	Marks	Total
2	(bii)	<p>A linked explanation that includes either of the following:</p> <p>Physical:</p> <ul style="list-style-type: none"> • Can lead to sense of achievement (1) <p>as he will improve his physical fitness/ increased levels of exercise/ overcome physical challenge/ increase skill/playing ability (1)</p> <p>making him feel good/feel better about himself (1)</p> <p>Social:</p> <ul style="list-style-type: none"> • Joining a club could make him feel less isolated/feel part of something/feel included/feeling/knowing part of a team (1) <p>as he will be able to join in with others/playing with others/meet others /make friends/gives opportunity to mix with others/build social skills/develop teamwork/cooperate (1)</p> <p>which will make him feel good/feel better about himself (1)</p>	1x3	(3)
	(ci)	People/peers	1x1	(1)
	(cii)	Image/media (coverage)	1x1	(1)
	(ciii)	Resources/location /accessibility/ availability	1x1	(1)

Question 3	Answer	Marks	Total
	(a) Any from: <ul style="list-style-type: none"> • Sport England • Youth Sport Trust • National Governing Bodies/NGB/named example of NGB 	1x1	(1)
	(b) A linked description that makes reference to the following linked points <ul style="list-style-type: none"> • A priority group is any group that are considered <u>least</u> likely to participate in exercise/example of priority group/increased resources/making it easier for them to participate (1) <p>therefore e.g. a drop in resting blood pressure (1) leading to reduced chance of stroke (1)</p>	1x3	(3)

Question 3	Answer	Marks	Total
(c)	<p>A linked description that makes reference to the following.</p> <ul style="list-style-type: none"> • Provide opportunity for <u>talented</u> performers to succeed/for players to reach elite level (1) • By setting up specialist training centres/ Talent ID/ to reflect positively on the country/ Increase success of nation/medal count/ so they can play at <u>national/international/elite level</u> (1) 	1x2	(2)

Question 4		Answer	Marks	Total
4	(ai)	<p>A linked explanation that makes reference to the following.</p> <ul style="list-style-type: none"> Used to gain <u>height</u>/<u>push off</u>/<u>explode from</u>/<u>apply (enough) force</u>/<u>jump</u> from the beam (1) <p>This would give the <u>time</u> needed to complete the move (1)</p>	1x2	(2)
4	(aii)	<p>Two or more body parts moved together <u>to achieve the position/shape shown</u>/both legs need to be moved together/ (1)</p> <p>Coordination is used to execute the technique correctly/perform the move <u>well</u>/perform with control/make position <u>aesthetically pleasing</u> (1)</p>	1x2	(2)
4	(b)	<p>Any one of the following:</p> <ul style="list-style-type: none"> If a movement did not go to plan If she slips/loses her balance/adjust position so doesn't fall if she quickly had to change her mind about what to do next. 	1x1	(1)

Question 4		Answer	Marks	Total
4	(c)	<p>Identification and measure from one of the following:</p> <ul style="list-style-type: none"> • (Named) soft tissue injury (1) warm up/stretch (1) • Fracture/fall from apparatus/poor landing (1) matting/experienced coach/chalk (1) • Sprain (1) wear support bandage (1) • Named injury (1) make sure technique is well known/able to complete technique/practice so can complete skill (1) • Slip from apparatus/blisters (1) chalk hands <p>Accept other appropriate risks and measures to reduce stated risk.</p>	2x1	(2)

Question 5		Answer	Marks	Total
5	(a)	<p>Any two from:</p> <ul style="list-style-type: none"> • Fitter/CV system: This indicates he is fit(ter)/can work harder during the race/cardiovascular system more efficient/ stronger heart • Due to: Will not need to slow down/stop/restart quicker after stopping/slowing down/ tired as quickly/return to normal pace quicker /recover after intense part of course/work harder but still aerobically. • Impact during race: Therefore he will be able to run <u>faster for longer/more frequently</u> during the event/maintain speed on more intense sections of course 	1x2	(2)
5	(b)	<p>Any one from:</p> <ul style="list-style-type: none"> • Cardiovascular fitness • CV fitness • Cardiovascular endurance • Aerobic fitness • Aerobic endurance 	1x1	(1)
5	(c)	<p>Any one from:</p> <ul style="list-style-type: none"> • It measures the type of fitness that is required in cross-country/valid test/ sport specific • Can be used to predict cross country ability • Need cardiovascular fitness in cross country. • Intensity in the test is constant/constant speed/sub-maximal to match cross country requirements <p>Accept other relevant explanations.</p>	1x1	(1)

Question 5		Answer	Marks	Total
5	(d)	<p>Any one from:</p> <ul style="list-style-type: none"> • It involves stepping/Don't step up in x-country • Test doesn't involve running • Test doesn't use hills/change in terrain • Test doesn't involve a change in intensity/step at constant pace • Test doesn't last as long as cross-country/only prediction of fitness 	1x1	(1)

Question 6		Answer	Marks	Total
6	(i)	<p>A linked explanation, e.g.</p> <ul style="list-style-type: none"> • Carbohydrates provide energy (1) • Carbohydrates provide energy (1) so quality of performance remains high/optimum performance (1) • Carbohydrates provide energy (1) so they can last longer in their game/race/event • Carbohydrates provide energy (1) so they can maintain/continue activity level in game/race/event <u>without tiring</u> • Carbohydrates provide energy (1) so can increase intensity/work rate when needed in a fast break (1) <p>Accept other relevant explanations.</p>	1x2	(4)

Question 6		Answer	Marks	Total
6	(ii)	<p>A linked explanation, e.g.</p> <ul style="list-style-type: none"> • Protein is used for growth/ increased muscle mass/bigger muscles (1) so stronger/powerful/faster for their event (1) • Repair of tissue/muscle (1) to recover from injury/quicker recovery (1) <p>Accept other relevant explanations.</p>	1x2	(2)

Question 7		Answer	Marks	Total
7		<p>Linked explanation any three of the following points:</p> <ul style="list-style-type: none"> • Blood shunting occurs (1) • (Increased) blood flow to the digestive system is required after eating a large meal (1) • (However) blood flow is required to the active muscles during exercise (1) • (Resulting in) insufficient blood for increased blood flow to <u>both</u> the digestive system and active muscles /exercise causes blood flow to digestive system to be restricted/blood goes to muscles rather than digestive system (1) • Therefore insufficient blood is made available to the digestive system/meal is not fully digested /need time to digest food (1) <p>Accept other relevant explanations.</p>	1x3	(3)

Question 8	Answer	Marks	Total
8	Mesomorph - sprinting/100 m	3x1	(3)
	Endomorph - sumo (wrestling)		
	Ectomorph- 10,000 m		

Question 9		Answer	Marks	Total
9	(a)	<p>Linked explanation of three of the following points:</p> <ul style="list-style-type: none"> • Need oxygen for muscles <u>due to exercise</u>/ need to get O₂ to the <u>working muscles</u> / remove CO₂ from muscles (1) • An increased breathing rate makes O₂ available in body/lungs/increases oxygen <u>intake</u>/ <u>increases</u> CO₂ removal (1) • But needs (increased) heart rate to transport/pump oxygen <u>to muscles</u>/remove CO₂ from the <u>muscles</u> (1) 	1x3	(3)
9	(b)	<p>Any one of the following:</p> <p><u>Increase/larger</u> stroke volume <u>Increase</u> amount of blood pumped/ejected <u>per beat</u> Forcing <u>more</u> out <u>each</u> stroke <u>Increased SV</u></p>	1x1	(1)
9	(c)	Increased	1x1	(1)

Question 10	Answer	Marks	Total
(a)	(Flexion to) extension (Flex to) extend	1x1	(1)
(b)	Isotonic/concentric	1x1	(1)
(c)	A linked description that makes reference to the following. Max 3. <ul style="list-style-type: none"> • <i>Identification of biceps <u>and</u> triceps (1)</i> • <i>Work as antagonistic pair (1)</i> • <i>At B/as thrown biceps relax to allow triceps to contract to extend the arm at the elbow/throwing arm/in image B (1)</i> 	1x3	(3)
(d)	Any one of the following: Tennis elbow Golfer's elbow Sprain Torn cartilage	1x1	(1)

Question 11	Answer	Marks	Total
(a)	<p>A linked explanation that gives an example of poor health, the impact of this and the reason for the impact.</p> <p>E.g:</p> <ul style="list-style-type: none"> • If you have a cold (1) means need to lower intensity/can't work as hard/slow down/as long (1) because oxygen delivery is reduced (1) • High cholesterol/high blood pressure (1); means need to lower intensity/can't work as hard/slow down/as long (1) due to reduced oxygen delivery (1) • Obesity/overfat/ overweight/<u>excess</u> body fat (1) therefore increasing amount of physical work/makes it harder to run/slows you down (1) due to additional body fat (1) 	1x3	(3)

Question 11	Answer	Marks	Total
(bi)	<p>A linked explanation. E.g</p> <p>Cardiovascular fitness -</p> <ul style="list-style-type: none"> Because hockey lasts a long time/need to work for a long time (without tiring)/ need efficient oxygen transport system(1) <p>to <u>maintain</u> quality/level of performance throughout game(1)</p> <p>Flexibility -</p> <ul style="list-style-type: none"> Flexibility helps the player <u>increase/good/high</u> range of movement/get low/<u>increase</u> reach/ stretch <u>further</u> /reduce injury (1) <p>so they can block /intercept a pass/ tackle /perform technique better/reach the ball. (1)</p>	2x2	(4)

Question 11	Answer	Marks	Total
(bii)	Any one of the following: <ul style="list-style-type: none"> • (Muscular) strength • Muscular endurance • Body composition 	1x1	(1)
(c)	Any two of the following: <ul style="list-style-type: none"> • Training needs to suit needs of individuals/should match individual requirements/not all at the same starting point/different strengths/weaknesses/own targets (1) • Different levels of fitness/different fitness requirements (1) • Different skill/ability level/levels of play (as play for different teams) (1) • Different health issues/medical needs (1) 	2x1	(2)

Question	Answer
12 E TA	Discuss whether circuit training would be the most effective method of training to improve performance in games.

Indicative content

Key:

S: Simple Statement

S+ : Simple extended statement but not developed

DS: Developed Statement

A - Description of characteristics of circuit training

(Accept any accurate statement demonstrating knowledge (recall) of circuit training. **Level 1 response**)

- involves a number of different exercise stations(S)
- Allows you to work on fitness (S)
- Allows you to work on skills/techniques (S)
- can be organised as a form of continuous/interval training/work aerobically or anaerobically (S)
- can use time working, reps or type of rest to determine intensity (S)
- can work on more than one component of fitness/different areas of the body/can work a range of muscles/muscle groups (S)
- easy to set up/can do with large groups/cheap/minimal equipment (S)
- organised so working alternate muscle group (S)

B - Discussion points regarding why circuit training will be effective in improving games performance

(Characteristic linked with games activity and explanation regarding why this makes CT an effective method/how it helps performance)

- Circuit training could be adapted to any game/mimic game/increase fitness (S), for example shuttle runs to improve speed (S+) to be first to a through ball in football/equiv (DS)
- CT is specific to games play (S) as games activities use a variety of energy systems, for example players work aerobically and anaerobically (S+) e.g. in hockey during play they will be sprinting for the ball and jogging back into position for the length of the game (DS)
- A circuit could be organised to improve skill (S), for example, include a dribbling station so they would be less likely to lose possession in a game (DS)
- CT can be adapted to suit teams/players individual needs (S), e.g. goalkeeper would work on flexibility and midfielder on muscular endurance (S+) so they can stretch for the ball/maintain quality of passing (DS)
- CT is a form of continuous training (S) this would increase the players CV fitness so they could maintain performance throughout the 90 minute match (DS)
- CT could be used to increase both fitness and skill (S) for example, a sit-up station to improve muscular endurance followed by a station to work on lay-up shots (DS).

Credit comparisons between methods that discuss why CT is better

C - Discussion points re why circuit training will be less effective in improving games performance

(Characteristic linked with games activity and explanation given re why this makes CT an ineffective method/comparison to other more effective methods) Problem - why -

- CT is not the most effective method to increase CV fitness as it is a form of interval training/has recovery periods/not continuous (S), a better method would be continuous training/Fartlek (DS)

- Although variation can be built in to stations circuit training alone could become boring, (S) unlike cross training where different methods can be used to maintain motivation to train (DS)
- CT involves working at high intensity/does not involve a change in pace/just work at high intensity (S) so Fartlek training would be more suitable as it involves running at different paces so is more specific to games play (DS)
- A rugby player wanting to improve their strength would be better using weight-training (S)

Credit comparisons between methods that discuss why other method would be better than CT

D - Conclusion - simple statements unless further elaboration/linkage

- Most effective as only method to potentially develop such a wide range of skills that can be applied to a game (S)

Level	Mark	Descriptor
Level 0	0	No rewardable material
Level 1	1-2	<p>i) A number of simple statements that describe the methods of training E.g. Circuit training involves a number of different exercise stations</p> <p>ii) A number of simple statements that link the method of training to relevant aspects of fitness. E.g. Circuit training can be used to improve cardiovascular fitness.</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 whether circuit training would be the most effective method of training to use to improve performance in games players.</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>
Level 2	3-4	<p>i) Developed statements, i.e. simple statements which describe the methods of training and give an example of how this could be used to increase performance due to increase in fitness. E.g. CT working on CV fitness to increase player's ability to maintain performance throughout 90 min match.</p> <p>ii) Developed statements, i.e. simple statements with explanation of how CT is not most effective, e.g. Fartlek training could be more specific to activity due to changing pace used in game and training method, therefore making training more relevant, thus improving more relevant areas of fitness.</p> <p>iii) 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 methods of training. Candidates will have addressed the requirement of the question to discuss the use of CT to improve performance in games players with some success.</p> <p>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>
Level 3	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 methods of training and their application. The discussion will be supported by accurate factual material that is relevant to the question. Both advantages of CT and disadvantages 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>

Question	Answer
13 E - TA	With reference to the skeletal and muscular systems, explain how a weight-training programme will affect performance in an athletic throwing event.
<p data-bbox="113 342 1519 380">Indicative content - shot-put is used as an example but can be applied to any throwing event</p> <p data-bbox="113 414 191 448">Key:</p> <p data-bbox="113 448 399 481">S: Simple Statement</p> <p data-bbox="113 481 798 515">S+ : Simple extended statement but not developed</p> <p data-bbox="113 515 462 548">DS: Developed Statement</p> <p data-bbox="113 616 1519 683">A - General points regarding shot put/weight training (equally relevant to other throwing events) or adaptations: (example simple statements)</p> <ul data-bbox="175 683 1519 907" style="list-style-type: none"> • The performer will be stronger due to weight training programme • WT will increase strength/power • Strength X speed = power • Shot put does not require muscular endurance for a single throw (so would focus on strength) • Regular/long term training leads to adaption/hypertrophy/bigger muscles/greater muscle mass • To increase strength need to lift heavy load/low reps <p data-bbox="113 929 1519 996">Accept other accurate statements demonstrating knowledge of training effects to improving performance.</p> <p data-bbox="113 1030 1519 1108">B - Training effects on muscular system (example simple statements - developed statements would need linking to impact on shot put)</p> <ul data-bbox="175 1131 1519 1388" style="list-style-type: none"> • Increase/ remain muscular strength/power (S) resulting in a greater distance being achieved. (DS) • Micro tears occur in the muscle due to training (S) these repair (during recovery) to make the muscle stronger (S+) to throw further (DS). • Increase in muscular endurance (S) this may help the muscles recover between throws (DS) • Poorly designed WT programme, e.g. lifting weights that are too heavy (S) can lead to muscle tear (S+) meaning they could not train/compete (DS). <p data-bbox="113 1411 1519 1489">Accept other accurate statements demonstrating knowledge of training effects on muscular system and impact on performance. NB This could be negative impact of overtraining.</p> <p data-bbox="113 1512 1519 1590">C - Training effects on skeletal system (example simple statements - developed statements would need linking to impact on shot put)</p> <ul data-bbox="175 1612 1519 1971" style="list-style-type: none"> • Increased bone density (S) leading to increased bone strength (S+) • Increased bone density/strength (S) therefore less likely to break or fracture a bone (S+) when lift/ throwing/ preventing training (DS). • Increased strength of ligaments/increased joint stability (S) therefore the performer is less likely to suffer a dislocation (S+) when throwing (DS). • Increased strength of tendons (S) therefore able to manage heavier weights without rupturing a tendon/less likely to suffer with overuse injury (S+) during training/ as a result of training too much (DS) • Production of synovial fluid (S) allowing a better technique (S+) resulting in further distance being put (DS). <p data-bbox="113 1993 1519 2072">Accept other accurate points demonstrating knowledge of effects on skeletal system and impact on performance. NB This could be negative impact of overtraining/considerations based on age.</p>	

D - Conclusions: (example developed statements based on previous points. If no 'therefore', i.e. first part of statement only = simple statement)

- Would need to be the correct type of weight training as the performer needs an increase in power rather than endurance **therefore** they need to focus on heavier weights with lighter reps for this activity.
- Would need to focus on the correct muscles required for putting the shot, otherwise those muscles will not adapt, **therefore** there would be no impact on performance
- It is important to ensure the correct balance of training and rest is achieved to allow time for the body to adapt, **otherwise** the training will not be effective and performance will not improve.

Level	Mark	Descriptor
Level 0	0	No rewardable material
Level 1	1-2	<p>(i) A number of simple statements that describe the requirements for throwing events. E.g. in shot need muscular strength to increase power.</p> <p>(ii) A number of simple statements that describe possible training effects. E.g. weight training can increase strength</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 training adaptations. Responses produced by candidates will be mostly generalised, and may not fully address the requirement of the question to explain the long-term training effects of a weight-training programme.</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>
Level 2	3-4	<p>(i) Developed statements, i.e. simple statements of training effects on muscular system with explanation to develop point. E.g. Increase in muscular strength <u>due to</u> lifting heavier weights, (S) <u>this will</u> mean that more power can be put into the throw <u>resulting in</u> a greater distance being achieved.</p> <p>(ii) Developed statements, i.e. simple statements of training effects on skeletal system with explanation to develop point. E.g. Increased bone density <u>due to</u> increased deposit of mineral salts <u>therefore</u> less likely to break or fracture a bone preventing training, therefore losing performance.</p> <p>(iii) 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 training effects of a weight training programme and its impact on performance. Candidates will have addressed the requirement of the question to the long-term training effects of a weight-training programme.</p> <p>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>
Level 3	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 long-term training effects of a weight-training programme.</p> <p>The discussion will be supported by accurate factual material that is relevant to the question. The majority of the effects will be fully discussed 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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