



Pearson
Edexcel

Mark Scheme (Results)

Summer 2023

Pearson Edexcel GCSE
In Physical Education (1PE0)
Paper 01: Fitness and Body Systems

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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

Question Number	Answer AO1 – 1 mark	Mark
Q01 (a)	<p>The only correct answer is C – Neck (atlas and axis)</p> <p>Incorrect options: A – This is a ball and socket joint B – This is a hinge joint D – This is a ball and socket joint</p>	(1)
Q01 (b)	<p>The only correct answer is B – To join bone to bone.</p> <p>Incorrect options: A – Where blood vessels connect, this is through the capillaries C – This is the role of tendons D – Muscles are not joined together</p>	(1)
Q01 (c)	<p>The only correct answer is C – The muscular wall of an artery or vein.</p> <p>Incorrect options: A – Biceps are skeletal muscle B – Hip flexors are skeletal muscle D – The outer layer surrounding the lungs is not made of muscle, it is a membrane.</p>	(1)
Q01 (d)	<p>The only correct answer is B – Sagittal plane about the frontal axis.</p> <p>Incorrect options: A – Frontal plane about the sagittal axis – the frontal plane allows sideways movements, e.g. adduction/abduction required in a cartwheel C – Transverse plane only allows twisting or rotation movements, so it is not possible to achieve the flexion required for the tuck D – Transverse plane only allows twisting or rotation movements, so it is not possible to achieve the flexion required for the tuck</p>	(1)

Question Number	Answer	Mark												
	AO1 – 4 marks; AO2 – 2 marks													
Q02 (a&b&c)	<p>One mark for each correct response.</p> <table border="1"> <thead> <tr> <th></th> <th>(a) Bone</th> <th>(b) Function of bone</th> <th>(c) Example of use</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>Femur (1)</td> <td>Lever(age) Muscle attachment (1)</td> <td>Running Kicking Squat/ lunge/equivalent (1)</td> </tr> <tr> <td>B</td> <td>Carpals (1)</td> <td>Weight bearing (1)</td> <td>Handstand /equivalent (1)</td> </tr> </tbody> </table> <p>Accept other appropriate responses.</p>		(a) Bone	(b) Function of bone	(c) Example of use	A	Femur (1)	Lever(age) Muscle attachment (1)	Running Kicking Squat/ lunge/equivalent (1)	B	Carpals (1)	Weight bearing (1)	Handstand /equivalent (1)	(6)
	(a) Bone	(b) Function of bone	(c) Example of use											
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B	Carpals (1)	Weight bearing (1)	Handstand /equivalent (1)											

Question Number	Answer	Mark
	AO1 – 2 marks; AO2 – 1 mark	
Q03 (i)	<p>One mark for each correct response.</p> <ul style="list-style-type: none"> • Flat (1) • Heart/lungs/vital organs (1) • If punched (1) <p>Accept other appropriate responses.</p>	(3)

Question Number	Answer	Mark
	AO1 – 2 marks	
Q03 (ii)	<p>One mark for each correct response.</p> <ul style="list-style-type: none"> • Irregular (1) • Protection/muscle attachment (1) <p>Accept other appropriate responses.</p>	(2)

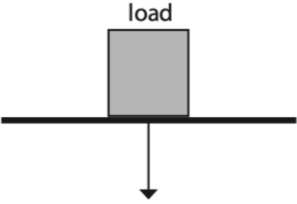
Question number	Answer AO1 – 1 mark; AO2 - 1 mark; AO3 - 1 mark	Mark
Q04 (i)	<p>One mark for any of the following points (up to three marks).</p> <ul style="list-style-type: none"> The (antagonistic pair are the) biceps and triceps (1). The triceps contract/are the agonist (1) causing extension at the elbow (1) <p>Accept other appropriate responses.</p> <p>One mark for linked antagonist pair (AO1). One mark for linking correct agonist muscle action to cause movement (AO2). One mark for analysis of joint action in image (AO3).</p>	(3)

Question number	Answer AO1 – 1 mark; AO2 - 1 mark; AO3 - 1 mark	Mark
Q04 (ii)	<p>One mark for any of the following points (up to three marks).</p> <ul style="list-style-type: none"> The antagonistic pair are the gastrocnemius and tibialis anterior/anterior tibialis (1). The gastrocnemius contracts/acts as agonist (1) causing plantar flexion at the ankle (1) <p>Accept other appropriate responses.</p> <p>One mark for linked antagonist pair (AO1). One mark for linking correct agonist muscle action to cause movement (AO2). One mark for analysis of joint action in image (AO3).</p>	(3)

Question Number	Answer	Mark												
	AO1 – 1 mark; AO2 – 3 marks													
Q05 (a&b&c)	<p>One mark for each correct response.</p> <table border="1"> <thead> <tr> <th></th> <th>(a) Fibre type</th> <th>(b) Characteristic of fibre type</th> <th>(c) Example use</th> </tr> </thead> <tbody> <tr> <td>Row A</td> <td>Type IIx (1)</td> <td>Fast/quick (speed of <u>contraction</u>) Produce large force. (1)</td> <td>Taking off in high jump</td> </tr> <tr> <td>Row B</td> <td>Type 1 (1)</td> <td>Most resistant to fatigue</td> <td>Marathon Long-distance (1)</td> </tr> </tbody> </table> <p>Accept other appropriate responses.</p>		(a) Fibre type	(b) Characteristic of fibre type	(c) Example use	Row A	Type IIx (1)	Fast/quick (speed of <u>contraction</u>) Produce large force. (1)	Taking off in high jump	Row B	Type 1 (1)	Most resistant to fatigue	Marathon Long-distance (1)	(4)
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Row B	Type 1 (1)	Most resistant to fatigue	Marathon Long-distance (1)											

Question Number	Answer	Mark
	AO1 – 1 mark; AO2 – 1 mark; AO3 – 1 mark	
Q06 (i)	<p>One mark for identification of role, one mark for linking to performer and one mark for impact/importance to training.</p> <p>For example:</p> <ul style="list-style-type: none"> • Fight infection/engulf pathogens/disease/stop viruses (1) • to remain healthy/protect against illness (1) • so Amari can <u>continue</u> to train/avoid reversibility/avoid loss of fitness (1). <p>Accept other appropriate responses.</p> <p>One mark for role of white blood cell (AO1). One mark for application of this to performer (AO2). One mark for impact on training (AO3).</p>	(3)

Question Number	Answer	Mark
	AO1 – 1 mark; AO2 – 1 mark; AO3 – 1 mark	
Q06 (ii)	<p>One mark for identification of role, one mark for linking to performer and one mark for impact/importance to training.</p> <p>For example:</p> <ul style="list-style-type: none"> • Transports red blood cells (1) carrying oxygen (1) so Amari’s muscles can continue to work aerobically/she can delay fatigue to improve quality of training (1) <p>Accept other appropriate responses.</p> <p>One mark for role of plasma (AO1). One mark for application of this to performer (AO2). One mark for impact on training (AO3).</p>	(3)

Question Number	Answer	Mark
	AO3 – 1 mark	
Q07 (ai)	<p>One mark for correct response</p> <div style="text-align: center;">  <p>Figure 4</p> </div> <ul style="list-style-type: none"> • Second class 	(1)

Question Number	Answer	Mark
	AO1 – 2 marks	
Q07 (aii)	<p>One mark for each correct response.</p> <ul style="list-style-type: none"> • Effort (1) • Fulcrum/pivot (1) <p>Accept in any order.</p>	(2)

Question Number	Answer AO2 – 1 mark; AO3 – 1 mark	Mark
Q07 (b)	<p>One mark for appreciation of short resistance arm and one mark for linking this to mechanical advantage for performer.</p> <p>For example:</p> <ul style="list-style-type: none"> • The resistance arm is <u>shorter</u> than the effort arm (1) which means they can move a larger load with relatively little effort (1) • The effort arm is long(er)/fulcrum furthest from effort (1) so can lift so can move the load relatively easily/easier to lift more (1) <p>Accept other appropriate responses.</p> <p>One mark for analysis of resistance/effort arm (AO3). One mark for impact on performance (AO2).</p>	(2)

Question Number	Answer AO2 – 1 mark	Mark
Q07 (c)	<p>One mark for correct response.</p> <p>For example:</p> <ul style="list-style-type: none"> • Take off in high jump/long jump (1) • Going on toes to reach a ball in tennis (1) • Going on toes in dance/gymnastics (1) • Jumping in volleyball (1) • Lay up in basketball (1) • Running in a race (1) • Calf raises in gym (1) • <u>Pushing off</u> in a sprint start (1) • GK <u>diving</u> to save a shot (1) <p>Accept other appropriate responses.</p>	(1)

Question Number	Answer AO3 – 1 mark	Mark
Q08 (ai)	<p>One mark for correct response.</p> <ul style="list-style-type: none"> • First 	(1)

Question Number	Answer AO3 – 1 mark	Mark
Q08 (a ii)	<p>One mark for correct response.</p> <ul style="list-style-type: none"> • Third 	(1)

Question Number	Answer AO2 – 1 mark	Mark
Q08 (b)	One mark for correct response. <ul style="list-style-type: none">• The ball (1)• The football (1)• The weight of the ball (1) Accept other appropriate responses.	(1)

Section B

Question Number	Answer	Mark
Q09 (a)	<p>AO3 – 1 mark</p> <p>The only correct answer is A – Continuous training.</p> <p>Incorrect options:</p> <p>B – Fartlek uses changes in intensity so heart rate would fluctuate</p> <p>C – Interval uses changes in intensity so heart rate would fluctuate</p> <p>D – Plyometric uses changes in intensity so heart rate would fluctuate</p>	(1)
Q09 (b)	<p>AO1 – 1 mark</p> <p>The only correct answer is D – Weight training.</p> <p>Incorrect options:</p> <p>A – Fartlek – used to improve cardiovascular endurance</p> <p>B – Interval used to improve cardiovascular endurance or speed</p> <p>C – Plyometric used to improve power</p>	(1)
Q09 (c)	<p>AO1 – 1 mark</p> <p>The only correct answer is D – Increased vital capacity.</p> <p>Incorrect options:</p> <p>A – A drop in resting blood pressure is a training effect on the cardiovascular system</p> <p>B – Increased maximum cardiac output is a training effect on the cardiovascular system</p> <p>C – Increased resting stroke volume is a training effect on the cardiovascular system</p>	(1)
Q09 (d)	<p>AO2 – 1 mark</p> <p>The only correct answer is B – Overtraining.</p> <p>Incorrect options:</p> <p>A – FITT is used to structure training so aids planning</p> <p>C – Progressive overload is planned, gradual increase in workload</p> <p>D – Thresholds of training is used to plan and monitor training intensity</p>	(1)

Question Number	Answer AO2 – 1 mark; AO3 – 2 marks	Mark
Q10 (a)	<p>Up to two marks for interpretation of data and one mark for reason why therefore this made it the hardest section for the performer.</p> <p>For example:</p> <ul style="list-style-type: none"> • It takes Carron the longest time to complete (1) despite covering the same distance (1) this must be because the terrain is hilly increasing the intensity of the section so she cannot cycle as quickly (1) <p>Accept other appropriate responses.</p> <p>Two marks for relevant use of data (AO3). One mark for application of this to performer (AO2).</p>	(3)

Question Number	Answer AO1 – 1 mark	Mark
Q10 (bi)	<p>One mark for correct response.</p> <ul style="list-style-type: none"> • Hypertrophy/more muscle mass (1) • Stronger muscles (1) • Increased strength of tendons (1) <p>Accept other appropriate responses.</p>	(1)

Question Number	Answer AO1 – 1 mark	Mark
Q10 (bii)	<p>One mark for correct response.</p> <ul style="list-style-type: none"> • Increased bone density (in legs/skeletal areas where stress is applied) (1) • increased bone strength (1) <p>Accept other appropriate responses.</p>	(1)

Question Number	Answer AO2 – 1 mark; AO3 – 1 mark	Mark
Q10 (c)	<p>One mark for reason and one mark for appropriate expansion.</p> <p>For example:</p> <ul style="list-style-type: none"> • (No), as it tests the core/only tests one area of the body (1) she needs ME in her legs/needs to test her legs/needs to test relevant muscles (1) • (No), as it is not specific to her event (1) she needs ME in the legs/needs to test the muscular endurance of her legs (1) • (Yes), as it gives an indication of her muscular endurance (1) needed to repeatedly use the leg muscles to pedal the long-distance (1) • (Yes), as it tests the muscular endurance of the core (1) needed to maintain posture/technique (1) <p>Accept other appropriate responses.</p> <p>One mark for <u>reasoned</u> judgement of yes/no (AO2). One mark for expansion to give justification of reason (AO3).</p>	(2)

Question Number	Answer AO2 – 1 mark; AO3 – 1 mark	Mark
Q11 (a)	<p>One mark for identifying why fitness should be measured and one mark for appropriate expansion.</p> <p>For example:</p> <ul style="list-style-type: none"> • See his strengths/weaknesses (1) so his training can be designed to meet his individual needs (1) • Fitness testing will provide him with baseline data (1) so he can set appropriate starting weights/targets (1) <p>Accept other appropriate responses.</p> <p>One mark for reason he should measure his fitness (AO2). One mark for expansion to justify reason (AO3).</p>	(2)

Question Number	Answer	Mark
	AO1 – 2 marks	
Q11 (b)	<p>One mark for each correct response within the linked description.</p> <p>For example:</p> <ul style="list-style-type: none"> • Arm (straight/slightly flexed) by your side/elbow by your side (1) squeeze the dynamometer as hard as possible (1) <p>Accept other appropriate responses.</p>	(2)

Question Number	Answer	Mark
	AO3 – 1 mark	
Q11 (c)	<p>One mark for the correct response.</p> <ul style="list-style-type: none"> • Average (1) 	(1)

Question Number	Answer	Mark									
	AO1 – 2 marks; AO2 – 2 marks										
Q11 (d&e)	<p>One mark for each correct response.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%;">Fitness test</th> <th style="width: 35%;">(d) Component of fitness tested</th> <th style="width: 40%;">(e) Method of training or fitness class to improve component of fitness</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Sit and reach</td> <td>Flexibility (1)</td> <td>Flexibility PNF Yoga (1)</td> </tr> <tr> <td style="text-align: center;">Harvard step test</td> <td>Cardiovascular/CV (fitness)/ Aerobic (fitness) CV endurance (1)</td> <td>Continuous Fartlek Aerobics (1)</td> </tr> </tbody> </table> <p>Accept other appropriate responses.</p>	Fitness test	(d) Component of fitness tested	(e) Method of training or fitness class to improve component of fitness	Sit and reach	Flexibility (1)	Flexibility PNF Yoga (1)	Harvard step test	Cardiovascular/CV (fitness)/ Aerobic (fitness) CV endurance (1)	Continuous Fartlek Aerobics (1)	(4)
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Question Number	Answer	Mark
	AO1 – 1 mark; AO2 – 1 mark	
Q11 (f)	<p>One mark for identifying why body pump would be a good choice and one mark for appropriate expansion.</p> <p>For example:</p> <ul style="list-style-type: none"> • Body pump involves the use of weights/is a type of resistance training (1) increasing the amount of weight/resistance he lifts, his strength will increase (1) • Body pump uses weights (1) which causes (additional) resistance on the muscles/makes the muscles work harder /causes <u>microtears</u> (1) <p>Accept other appropriate responses.</p> <p>One mark for knowledge of body pump (AO1). One mark for link to why strength increases (AO2).</p>	(2)

Question Number	Answer	Mark
	AO2 – 1 mark; AO3 – 1 mark	
Q11 (gi)	<p>One mark for example and one mark for expansion.</p> <p>For example:</p> <ul style="list-style-type: none"> • He could increase the time at the station (1) for example, rather than running the station for 30 seconds he could sit-up for 45 seconds (1) • Rather than just his body weight he should hold a weight when performing the sit-ups (1) for example a 5kg weight on his chest (1) <p>Accept other appropriate responses.</p> <p>One mark for analysis leading to relevant example (AO3). One mark for example related to the training principle (AO2).</p>	(2)

Question Number	Answer	Mark
	AO2 – 1 mark; AO3 – 1 mark	
11 (gii)	<p>One mark for example and one mark for expansion.</p> <p>For example:</p> <ul style="list-style-type: none"> • (Rather than just using body weight exercises) he could add weights when performing the stations (1) for example a 5kg weight on the body weight squats (1) • Replace cardiovascular endurance/muscular endurance-based stations (1) for example, rather than skipping he could add biceps curls with weights (1) • Change the exercises so they focus on strength (1) for example add a kettlebell deadlift station/equiv. <p>Accept other appropriate responses.</p> <p>One mark for analysis leading to relevant example (AO3). One mark for example related to the training principle (AO2).</p>	(2)

Question Number	Answer	Mark
	AO1 – 1 mark	
Q12 (a)	<p>One mark for correct response.</p> <ul style="list-style-type: none"> • Rest, ice, compression, elevation (1) • Rest, ice, comfortable support, elevation (1) <p>NB Must have all correct for mark.</p>	(1)

Question Number	Answer	Mark
	AO2 – 1 mark	
Q12 (b)	<p>One mark for correct example.</p> <ul style="list-style-type: none"> • Leg swings/lunges/equiv. (1) • Stretches (1) <p>Accept other appropriate low intensity responses.</p>	(1)

Question Number	Answer	Mark
	AO1 – 1 mark; AO3 – 1 mark	
Q12 (c)	<p>One mark for example and one mark for expansion.</p> <p>For example:</p> <ul style="list-style-type: none"> • Narcotic <u>analgesics</u> (1) this is because they mask the pain so the athlete can perform at the same or similar intensity as when not injured. (1) <p>Accept other appropriate responses.</p> <p>One mark for correct identification of PED (AO1). One mark for evaluating why the PED is taken (AO3).</p>	(2)

Question Number	Answer	Mark
	AO1 – 1 mark	
Q12 (d)	<p>One mark for correct response.</p> <ul style="list-style-type: none"> • Diuretics (1) • Diuretic (1) <p>Accept phonetic spelling.</p>	(1)

Section C

Question Number	Indicative content AO1 – 3 marks; AO2 – 3 marks; AO3 – 3 marks	Mark
Q13	<p>Reward acceptable answers. Responses may include, but are not limited to, the following:</p> <p>Knowledge and understanding of ways to reduce injury (AO1):</p> <ul style="list-style-type: none"> • Correct application of the principles of training • Correct application and adherence to the rules • Use of appropriate protective clothing and equipment • Checking of equipment and facilities before use <p>Application of knowledge, linking ‘method’ with relevant example(s) (AO2):</p> <ul style="list-style-type: none"> • Correct application of the principles of training (AO1), for example rest and recovery/progressive overload (AO2) • Correct application and adherence to the rules (AO1), for example no two-footed tackles (AO2) • Use of appropriate protective clothing and equipment (AO1), for example use appropriate shin guards/pads (AO2) • Checking of equipment and facilities before use (AO1) for example, state of the pitch (holes/uneven/foreign objects) (AO2) <p>Evaluation of topic – making reasoned judgement(s) about the importance to the performer remaining injury free (AO3):</p> <ul style="list-style-type: none"> • Correct application of the principles of training (AO1), for example rest and recovery/progressive overload (AO2) so the muscles have time to heal/repair between sessions/so the player does not suffer overuse injuries/overtrain (AO3) • Correct application and adherence to the rules (AO1), for example no two-footed tackles (AO2) otherwise could result in fractures/torn ligaments stopping them from training (AO3) • Use of appropriate protective clothing and equipment (AO1), for example use appropriate shin guards/pads (AO2), vital to prevent a direct blow to the leg causing fracture meaning the players will be out of the game (AO3) • Checking of equipment and facilities before use (AO1) for example, state of the pitch (holes/uneven/foreign objects) (AO2) if uneven the players could twist an ankle and tear ligaments/cartilage resulting in rehabilitation (AO3) • These methods help reduce the risk of injury, however if a player does get injured, they should <u>seek medical attention and rest</u> to increase the chance of playing in the final. <p>Students who only show achievement against AO1 will not be able to gain marks beyond Level 1.</p>	

Level	Mark	Descriptor
	0	No rewardable material
1	1-3	<ul style="list-style-type: none"> • Demonstrates isolated elements of knowledge and understanding, with limited technical language used (AO1). • Limited attempt to apply knowledge to question context (AO2). • Generic assertions may be presented (AO3 - evaluation).
2	4-6	<ul style="list-style-type: none"> • Demonstrates mostly accurate knowledge and understanding, including appropriate use of technical language in places (AO1). • Applied knowledge to question context (AO2). • Attempts at drawing conclusion, with some support from relevant evidence (AO3 – evaluation).
3	7-9	<ul style="list-style-type: none"> • Demonstrates accurate knowledge and understanding throughout, including appropriate use of technical language (AO1). • Applied detailed knowledge to question context throughout (AO2). • Reaches a valid and well-reasoned conclusion supported by relevant evidence (AO3 – evaluation).