



The EverLearner

National Mock Exams 2023

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Mark Scheme

AQA A-Level PE – Paper 2

Please read before distributing to students.

Purpose of this document

This document and the associated question paper are based on the data analysis performed by The EverLearner Ltd and published within the 2023 infographics. We are confident that:

- We believe this mark scheme has a very strong association with the actual external exam in 2023 in relation to command terms, skills, AO distribution, extended writing requirements and topics.
- However, this is categorically NOT a mark scheme for a predicted paper. No-one can accurately predict an exam paper and we make no claim to this end.
- It is vital that you only use this document internally in your school/college. Publishing the document online or sharing it in any other way is strictly prohibited as this will undermine the potentially educational experiences of students in other schools/colleges.
- Finally, please check the publication dates of the model answers for this paper as well as the associated revision sessions in May.

This mark scheme contains:

- Copy of each question for reference
- Marking guidance where appropriate
- Marking points containing alternative acceptable responses plus relevant assessment objective

How should schools use this mark scheme?

The mark scheme has been constructed specifically for the exam paper used in The EverLearner's National Mock Exams from 2023. The model answers will be available on the 28th April and some of these questions will be discussed in the live revision show provided by James Simms (Thursday 25th May, 17:00-18:30 on [youtube.com/TheEverLearner](https://www.youtube.com/TheEverLearner)).

All questions/mark schemes are available on ExamSimulator. Please note, there are hundreds of additional questions and mark schemes on ExamSimulator covering the AQA A-Level PE topics and skills. Within the platform, the teacher is assisted with the marking and full diagnostic feedback is also provided. ExamSimulator is a premium resource available via TheEverLearner.com.

I hope this helps both students and teachers in their exam preparations.

James Simms



Subject	Physical Education
Course	AQA Linear GCE PE Physiological Factors
Time allowed	2 hours

Title	AQA A-level PE Paper 2 - National Mock Exam 2023
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Guidance	<ul style="list-style-type: none">• This paper is marked out of 105 marks.• You have 2 hours (plus additional time for those who have Exam Access Arrangements).• Answer all questions.• A calculator is permitted for this exam.• This paper contains three 8-mark and three 15-mark question.• Good luck.
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Total marks	105
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1. Look at the image closely.
Which of the following is an example of an acute injury in basketball?
-

Marking points (maximum 1)

(1) [AO 2] Option A/A/Hamstring tear from sprinting up the court

2. Look at the image closely.
Which of the following is an accurate description of mechanical disadvantage?
-

Marking points (maximum 1)

(1) [AO 1] Option B/B/Load arm is longer than the effort arm

3. State **two** factors which can affect the stability of a rugby player.
-

Marking guidance

Please accept either the factor stated on its own or a description of how the factor leads to higher or lower stability.

Marking points (maximum 2)

(1) [AO 1] Height of the centre of mass/Height of CoM/Lower centre of mass equals less stable

(2) [AO 1] Mass of the player/Mass/Weight

(3) [AO 1] Size of the base of support/Area used for the base of support/Wider base under the CoM equals a higher stability

(4) [AO 1] Points of contact with the base of support/Points of contact/More points of contact equals greater stability

(5) [AO 1] Position of the line of gravity/Line of gravity above the base of support/Weight vector

4. Define the terms moment of inertia **and** angular velocity.
-

Marking points (maximum 2)

(1) [AO 1] Moment of inertia is the distribution of mass from the axis of rotation

(2) [AO 1] Angular velocity is the rate of rotational motion around an axis of rotation/Rate of spin

5. Define Newton's first law of angular motion.
Give a sporting example.
-

Marking guidance

Only accept suitable sporting examples for A02.

They must be described correctly using Newton's 1st law of angular motion to award the A02 mark.

Marking points (maximum 2)

(1) [AO 1] A rotating body will continue in a state of constant angular momentum until acted upon by an external torque/A body in flight will rotate with constant angular momentum until landing

(2) [AO 2] Ice skater continues to spin until a large enough external torque is applied/High diver continues to rotate with constant angular momentum until they hit the water/Table tennis ball hit with backspin continues to rotate with constant angular momentum until it strikes the table

6. A table tennis ball has been struck with backspin and is rotating at a rate of 120 revolutions per second.
Calculate the total revolutions that the ball will make if it travels through the air for 3 seconds before landing on the table.
-

Marking points (maximum 1)

(1) [AO 2] 360 revolutions/360

7. Evaluate the suitability of Fartlek training for a football player.

Marking guidance

Accept any other evaluation of the suitability of Fartlek training.

It must be linked and specific to football to gain AO3 credit.

Sub max two marks for the advantages of Fartlek training.

Sub max two marks for the disadvantages of Fartlek training.

Marking points (maximum 3)

(1) [AO 3] The combination of different speeds mimics the change of speed from a sprint, jog and walk used in a competitive football game

(2) [AO 3] The sprint section will stress the anaerobic energy systems to perform explosive movements such as sprinting for a ball/Develops anaerobic power to be able to sprint to defend the ball

(3) [AO 3] The low intensity sections will stress the aerobic energy system to allow players to recover quickly between phases of play/Develops aerobic power to be able to last the duration of the game without fatigue

(4) [AO 3] Fartlek is adaptable and the change in intensity and terrain can be altered to match those found in football/Fartlek can incorporate the ball to develop skills as well as fitness

(5) [AO 3] However, the intensity of a football game is largely dependent on the opposition and this cannot always be replicated in Fartlek training

(6) [AO 3] Fartlek training can be tedious and lead to football players feeling unmotivated

(7) [AO 3] Adding an incline or using different terrain is not relevant to the flat pitches where football games are played

8. Analyse how impulse affects the performance of a 100m sprinter.

Marking guidance



Refer to 8-mark level descriptors:

Accept the drawing of force times graphs, however these must be analysed to achieve AO3 credit. The net impulse must be linked to the impact on the performance of the 100m sprint race.

Marking points

- (1) [AO 1] Impulse = Force x Time/ $I = Ft$
- (2) [AO 1] Measured in Newtons per second/Ns/Newtons per second
- (3) [AO 1] Greater impulse is synonymous with a greater change in momentum
- (4) [AO 2] Sprinter increases impulse by applying more force to the ground/Greater ground reaction force/Applies more force to the block
- (5) [AO 2] Sprinter increases impulse by wearing spikes, which increase time in contact with the track/Wearing spikes increases impulse
- (6) [AO 3] Greater impulse at the start of the race means a greater change in momentum/Greater acceleration at the start of the race/Start of the race has a large positive impulse
- (7) [AO 3] Small negative impulse at the start so the sprinter can accelerate
- (8) [AO 3] Sprinter needs to maximise force because only the ball of the foot contacts the ground
- (9) [AO 3] Even with the spikes, the foot is in contact with the track for a short time
- (10) [AO 3] In the middle of the race, the net impulse is zero/Sprinter is at constant velocity from equal contact of drive and recovery leg
- (11) [AO 3] Towards the end of the race a large negative impulse is from the athlete decelerating/Sprinter dips for the line causing an increase in negative impulse
- (12) [AO 3] Unlikely to be a positive impulse at the end of race due to depleting phosphocreatine stores/Small positive impulse as ATP-PCr system is reaching its threshold

9. Evaluate the use of recovery methods for an elite rugby player.
Refer to motivation in your answer.

Marking guidance

Refer to 15-mark level descriptors



Marking points

- (1) [AO 1] Rugby players can use compression garments to recover/Compression garments/Compression leggings
- (2) [AO 2] Rugby players wear tight-fitting clothing for 12 hours after training or performance/Sleep in the compression clothing
- (3) [AO 3] Strength of compression is that it aids venous return/Increased venous return
- (4) [AO 3] Strength of compression leads to a faster recovery
- (5) [AO 3] Weakness of compression is practicality/Not always possible to wear compression clothing
- (6) [AO 1] Elite rugby players can use massage to recover/Foam rollers to recover/Massage
- (7) [AO 2] Elite rugby players would have a masseur or masseuse apply pressure to sore muscle tissue
- (8) [AO 3] Strength of massage is it aids the removal of toxins
- (9) [AO 3] Strength of massage is it reduces DOMS/Prevents tightness/Train or compete again sooner
- (10) [AO 3] Weakness of massage is the availability of a masseur or masseuse for a whole rugby team/May not be available/Lack of access
- (11) [AO 1] Elite rugby players can use cold therapy to recover/Cold therapy
- (12) [AO 2] Elite rugby players apply cold packs to muscle tissue/Apply an ice pack
- (13) [AO 1] Elite rugby players can use ice baths to recover/Ice baths
- (14) [AO 2] Elite rugby players submerge the whole body under ice water for at least 60 seconds
- (15) [AO 1] Elite rugby players can use cryotherapy to recover/Cryotherapy
- (16) [AO 2] Elite rugby players enter a cryo chamber containing extremely cold air
- (17) [AO 3] Strength of cold therapy, ice baths and cryotherapy is a decrease in inflammation/Less swelling
- (18) [AO 3] Strength of cold therapy, ice baths and cryotherapy is capillary flushing/Capillary flushing
- (19) [AO 3] Strength of cold therapy, ice baths and cryotherapy is better sleep afterward

9. Evaluate the use of recovery methods for an elite rugby player.
Refer to motivation in your answer.
-

(20) [AO 3] Weakness of cold therapy, ice baths and cryotherapy is practicality/Lack of access to a cryo chamber

(21) [AO 3] Weakness of cold therapy, ice baths and cryotherapy is discomfort/Painful/Unpleasant

(22) [AO 1] Intrinsic motivation is the internal drive to participate

(23) [AO 1] Extrinsic motivation is the external drive to participate

(24) [AO 2] Intrinsic motivation will be higher if a coach explains the values of recovery methods to the rugby players

(25) [AO 2] Extrinsic motivation will be higher if the coach incentivises recovery for the rugby players

(26) [AO 2] Extrinsic motivation can be used as tangible or intangible rewards for the rugby player

(27) [AO 3] More important that the rugby player is intrinsically motivated to recover properly

10. Look at the image closely.
Which of the following is an example of tangible motivation?
-

Marking points (maximum 1)

(1) [AO 1] Option C/C/Medal from the coach

11. Look at the image closely.
Which of the following is an example of a process goal for a hockey player?
-

Marking guidance

Accept the drawing of force times graphs. However, these must be analysed to achieve A03 credit. The net impulse must be linked to the impact on the performance of the 100m sprint race.

Marking points (maximum 1)

- (1) [AO 2] Option B/B/To improve the back lift of the stick when hitting the ball

12. Describe the frustration-aggression theory of aggression.
-

Marking guidance

Accept a labelled diagram of the frustration-aggression theory.

Marking points (maximum 4)

- (1) [AO 1] Frustration develops when goal-directed behaviour is blocked/Frustration is inevitable when goals are blocked/Goals are blocked
- (2) [AO 1] Frustration will always lead to aggression/Aggression increases due to the frustration
- (3) [AO 1] If aggression is successfully released, frustration is then lowered/Release of aggression can lower frustration
- (4) [AO 1] Release can have a cathartic effect/Catharsis
- (5) [AO 1] If aggression is not released or punishment is experienced, further aggression will build

13. Explain how social loafing can lead to poor performance in netball.

Marking points (maximum 3)

- (1) [AO 2] A player on the team lacks recognition in the team, leading to a sense of low value
- (2) [AO 2] Leads to motivation losses/A player then lacks motivation
- (3) [AO 2] Will not be a team player/Lack teamwork/Lack collaboration
- (4) [AO 2] Player will be letargic/Will not run back quickly to get into position/Will not attempt to make interceptions

14. Discuss the use of an autocratic leadership style when coaching beginners in rock climbing.

Marking guidance

Sub max two marks for the advantages of the autocratic style of leadership.

It must be specific to a beginner in rock climbing.

Sub max two marks for the disadvantages of the autocratic style of leadership.

Marking points (maximum 3)

- (1) [AO 3] The coach will make all the decisions about the route to climb so the participants feel safe and enjoy the experience
- (2) [AO 3] The participants will be given the correct instructions on the route to climb so they stay in the correct stage of development
- (3) [AO 3] Autocratic style can lead to overlearning so the beginner will master the basic skills such as the grip
- (4) [AO 3] However, the beginner may feel they cannot make their own decisions and they become bored easily
- (5) [AO 3] For some climbs, it is beneficial for the beginners to use a discovery style of learning to be able to increase their confidence

15. Evaluate the use of breathing control **and** progressive muscular relaxation to manage stress before a 10m platform dive.

Marking guidance

Refer to 8-mark level descriptors:



Marking points

- (1) [AO 1] Breathing control and progressive muscular relaxation are somatic stress management techniques
- (2) [AO 1] Stress is the perception of the inability to cope/Feeling under pressure in a particular situation
- (3) [AO 1] Breathing control involves slow, deep and controlled breathing
- (4) [AO 1] PMR involves muscles being tensed and then released slowly/Using muscle tension and releasing whilst deep breathing
- (5) [AO 2] The diver can incorporate both techniques into their warm-up
- (6) [AO 2] The diver is able to complete the techniques on the platform/Can be completed just ahead of the dive
- (7) [AO 2] The stressor in this environment could be the fear of getting the dive wrong/Level of competition/Feeling pressure from the crowd
- (8) [AO 3] Breathing control will help with centering so the shoulder and abdomen are fully relaxed ahead of the rotations in the dive
- (9) [AO 3] Deep breaths have a calming effect to ensure the diver is in the optimal zone of arousal/Heightened anxiety can be reduced
- (10) [AO 3] Breathing control can allow the diver to selectively attend at the start of the dive/Focus on relevant information/Filter out irrelevant information such as the crowd
- (11) [AO 3] Taking deep breaths is quick to learn/Practical to complete/Does not require a large amount of space
- (12) [AO 3] However, the diver needs to ensure they remember to complete the breathing activity/Diver must be motivated to choose to complete the breathing control activity
- (13) [AO 3] PMR can reduce the impact of somatic state anxiety/Reduce muscle tension to offset errors in the dive
- (14) [AO 3] However, PMR does require a sufficient amount of time to ensure all muscles are used from head to toe
- (15) [AO 3] PMR is a technical strategy which requires the diver to learn and execute correctly

16.

A swim relay coach must select four swimmers from a squad of seven to compete at a gala. Analyse the role that Tuckman's model of group formation could have in helping the coach choose the best team.

Marking guidance

Refer to 15-mark level descriptors



Marking points

- (1) [AO 1] Tuckman's model is forming, storming, norming and performing/Forming storming norming performing
- (2) [AO 1] Forming is a temporary stage where bonding occurs
- (3) [AO 2] Coach must observe how interpersonal relationships develop in the norming stage/Provide opportunities for teamwork to be tested
- (4) [AO 3] Impact of this is the coach can observe different swimmers working together and make judgments based on this
- (5) [AO 1] Storming is when conflict occurs and difficult decisions are made
- (6) [AO 2] Coach sets tasks where leadership and decision-making are required in the storming stage
- (7) [AO 3] Impact of this is that the coach can see who the emerging leaders are or who causes conflict
- (8) [AO 1] Norming is when agreement emerges and conflicts are resolved
- (9) [AO 2] Coach must observe where agreements are formed and common goals are established
- (10) [AO 3] Impact of this is the coach will avoid selecting swimmers from cliques
- (11) [AO 1] Performing is when understanding develops and the team works to a common goal
- (12) [AO 2] Coach must select their team based on cooperative relationships
- (13) [AO 3] Impact of this is the most cohesive team will be selected with the highest potential to swim well together
- (14) [AO 3] Impact of all of this is the fastest time being achieved and the best chance of winning a medal
- (15) [AO 3] Tuckman's model is very helpful but the coach must consider other factors such as who swims the fastest

17. Look at the image closely.
Which of the following is the correct description of subjective data?
-

Marking points (maximum 1)

(1) [AO 1] Option A/A/Feelings and opinions

18. Look at the image closely.
Which of the following is a side effect of an athlete taking EPO?
-

Marking points (maximum 1)

(1) [AO 1] Option D/D/Increased blood viscosity

19. National governing bodies (NGBs) invest money into deprived areas to increase participation in sport and physical activity.
State **three** other functions of NGBs.
-

Marking points (maximum 3)

- (1) [AO 1] Provide positive role models to promote talent/Role models to promote sport to target groups
- (2) [AO 1] Make facilities accessible/Accessible facilities
- (3) [AO 1] Meet government policy on sport and recreation
- (4) [AO 1] Invest in resources/Deploy regional development officers
- (5) [AO 1] Make decisions on who should receive funding/Liaise closely with Sport England
- (6) [AO 1] Establish talent identification schemes/Set a performance pathway/Talent pathway
- (7) [AO 1] Target underrepresentation in sport

20. Define positive deviance.

Marking points (maximum 1)

(1) [AO 1] Behaviour outside the norms of society but with no intent to harm or break the rules/Over-adherence to the norms of the sport/No intent to harm

21. Give **three** examples of positive deviance in relation to a performer in sport.

Marking points (maximum 3)

(1) [AO 2] Overtraining/Excessive training/Not allowing sufficient recovery

(2) [AO 2] Continuing to play when injured/Masking an injury

(3) [AO 2] Tackling in rugby and causing injury without intent

22. A television match official is a common feature of elite rugby. Evaluate the use of the technology on a **spectator** in rugby.
-

Marking guidance

Sub max two marks for the advantages of the TMO.

They must be specific to a spectator.

Sub max two marks for the disadvantages of the TMO.

Do not accept advantages and disadvantages linked to the performer, official or sport, as the question clearly states the spectator.

Marking points (maximum 3)

- (1) [AO 3] Positive is that outcomes are fairer, causing less frustration for spectators/More consistent decisions
- (2) [AO 3] Positive is that the replays can be exciting features of the game for viewers/Reviews lead to a build-up of nervous tension
- (3) [AO 3] Positive is that replays are often available to spectators whether in the stadium or not/Spectators feel part of the process
- (4) [AO 3] Positive is that the spectator develops a better understanding of the details of the game
- (5) [AO 3] Negative is that spectators have to wait for decisions to be made
- (6) [AO 3] Negative is that the flow of the game is disrupted and can lead to boredom amongst spectators
- (7) [AO 3] Negative is that spectators may disagree with tight calls and become angry
- (8) [AO 3] Negative is that replays can be used to sell advertising space and spectators are "sold to" on screen

23.

Elite long jumpers are explosive athletes.

Evaluate the use of anabolic steroids to maximise jumping performance.

Refer to muscle fibres in your answer.

Marking guidance



Refer to 8-mark level descriptors:

Accept any structural and functional characteristic of type IIx fibres for AO1 credit. When the characteristics have been applied specifically to the long jump, credit this as AO2. The marking points are just examples of the correct characteristics with the correct application.

The physiological and psychological side effects of anabolic steroids are also examples. Please accept suitable side effects. However, these must be used as an evaluative point for the long jump athlete.

Marking points

- (1) [AO 1] Anabolic steroids are artificially produced hormones/Synthetic hormones/Testosterone
- (2) [AO 1] Illegal drug/Performance enhancement
- (3) [AO 1] Type IIx muscle fibres are needed in the long jump/FTG/Fast Twitch Glycolytic
- (4) [AO 1] Type IIx muscle fibres have a high speed of contraction/Low myoglobin content/High PCr content
- (5) [AO 2] Long jump is a high-intensity activity over a short duration/High-intensity activity/Occurs in under 10 seconds
- (6) [AO 2] Long jump requires speed and power/An anaerobic event/ATP-PCr energy system used
- (7) [AO 2] A high speed of contraction is required on the run-up to be able to reach maximum speed
- (8) [AO 2] High PCr stores mean the PCr can be used as immediate energy in the absence of oxygen/No myoglobin, as oxygen is only used during recovery between jumps
- (9) [AO 3] Anabolic steroids promote muscle growth so the athlete has increased power on the take-off to increase the length of the jump/More likely to experience Type IIx hypertrophy for a faster sprint
- (10) [AO 3] The athlete will train at a higher intensity for longer to further increase strength and power/Offset any fatigue associated with high-intensity training/Able to complete more plyometric or weight training sessions
- (11) [AO 3] Athlete will feel more psychologically prepared having completed more physical training
- (12) [AO 3] However, anabolic steroids have numerous physiological side effects, such as liver damage/Heart failure/Increased acne

23. Elite long jumpers are explosive athletes.
Evaluate the use of anabolic steroids to maximise jumping performance.
Refer to muscle fibres in your answer.
-

(13) [AO 3] Can lead to psychological problems such as paranoia, which alters the athlete's approach to training and competition/Mood swings

(14) [AO 3] Increased aggression associated with steroids can lead to illegal jumps/Being over-aroused and not hitting the take-off board correctly

(15) [AO3] The drugs are illegal and can lead to bans/Measurements withdrawn/Loss of reputation

(16) [AO 3] The athlete may lose sponsorship deals/Receive negative publicity/Unable to compete

Technology is used to modernise sporting equipment and facilities.
Evaluate the impact of hi-tech equipment **and** facilities on sport **performers**.

Marking guidance



Refer to 15-mark level descriptors:

The indicative content makes extensive reference to disability athletes to provide examples to the marker. Candidates' responses do not need to be applied to disability sport. Examples of other technology for other athletes should be accepted whether referring to disability or not. This question is not specific to disability sport.

Marking points

- (1) [AO 1] Assistive technology/Adapted technology
- (2) [AO 2] Specially designed wheelchairs for track athletes/Throwing frames for athletic field events/Lightweight wheelchairs for wheelchair basketball
- (3) [AO 2] Prosthetic devices for running/Carbon flex fibre
- (4) [AO 3] Athletes are able to train optimally and disability barriers are minimised/Exercise with gait efficiency
- (5) [AO 3] Provide an increased opportunity for disabled athletes to compete at a high level
- (6) [AO 3] Athletes have an increased self-efficacy and the adapted technology can be designed and created specific to their needs
- (7) [AO 3] Feel safe as the equipment is designed to take impact/Athletes will feel stable and balanced and a lowered risk of injury
- (8) [AO 3] However, the equipment is very expensive and may be only available to athletes at the elite level/Widens the gap between elite and non-elite disabled athletes
- (9) [AO 3] If the equipment or technology breaks, it is expensive and time consuming to fix or find an alternative, which may cause reversibility
- (10) [AO 2] Low-impact pedal machine/Finger extensor exerciser/Adapted balance equipment
- (11) [AO 3] Elderly performers are encouraged to continue to be physically active/Maintain mobility and coordination
- (12) [AO 3] Health risks are reduced as barriers linked to age are minimised/Reduced strain on the NHS
- (13) [AO 1] 3G surfaces/4G/Multi-Use Games Area
- (14) [AO 2] Designed as part of the 2012 Olympic legacy/People places play initiative by the British Olympic Association/Iconic facilities initiative
- (15) [AO 3] Performers have access to one facility that covers numerous sports
- (16) [AO 3] Increased access to training facilities/More opportunity to train/More leagues and competitions

24. Technology is used to modernise sporting equipment and facilities.
Evaluate the impact of hi-tech equipment **and** facilities on sport **performers**.
-

- (17) [A03] High-quality facilities lead to performers wanting to participate more
- (18) [A03] Facilities are sustainable, so participation in physical activity increases
- (19) [AO 3] Conditions of the facilities are consistent, so training and competition is predictable/Very little impact from the weather and environment
- (20) [AO 3] However, for sports like football, the facility does not reflect the true bounce of grass leading to impact injuries/Surface is too rigid, leading to joint and ligament pain
- (21) [AO 3] They are very popular and it is challenging to be able to book and use/Overcrowding/Risk of overuse
- (22) [AO 3] Only available in particular locations/Some regions in the UK are missing out/Performers in some areas do not have access
- (23) [AO 1] Specially designed facilities
- (24) [AO 2] For example Lee Valley Velopark/Lee Valley white-water centre
- (25) [AO 3] Performers in those sports have increased opportunity to compete on the world stage/More people involved in the sport
- (26) [AO 3] However, they are expensive and not accessible to all