



The EverLearner

National Mock Exams 2025

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Mark Scheme OCR A-level PE – Paper 1

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 2025 infographics. Please, note the following:

- We believe this mark scheme has a very strong association with previous OCR A-level PE Paper 1 exams 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 potential educational experiences of students in other schools/colleges.
- Finally, please make sure you attend the associated revision session 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 2025. Many of these questions will be discussed in the live revision show provided by James Simms on **Thursday 8th of May 2025 at 15:30** (available to all subscribing schools live and on demand; a shorter version for non-subscribers will be available on YouTube after the live session).

The paper is available to be set, answered and marked online via [ExamSimulator](#). [ExamSimulator](#) is a premium resource available via [TheEverLearner.com](#) and provides immediate diagnostics of student writing performance after every exam answer. [Get in touch with us](#) to start a free trial.

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

James Simms



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

Title	OCR A-level (H555) Paper 1: Physiological Factors National Mock Exam 2025
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Guidance	<ul style="list-style-type: none">• This paper is marked out of 90 marks.• You have 120 minutes (plus additional time for those who have Exam Access Arrangements).• Answer all questions.• A calculator is permitted for this exam.• This paper contains one 20-mark question.• If the timer reaches zero prior to you submitting your paper, the software will automatically submit your responses.• Good luck!
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Total marks	90
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1. Look closely at this image of a spirometer trace.
Identify lung volumes A and B.

Marking guidance

Answers must be correctly linked to the relevant letter.

Marking points (maximum 2)

- (1) [AO 1] A is inspiratory reserve volume/A is IRV
- (2) [AO 1] B is residual volume/B is the air left in the lung after a maximal exhalation

2. Identify **two** features of a goniometer test for flexibility.

Marking points (maximum 2)

- (1) [AO 1] Joint-specific
- (2) [AO 1] Direct measurement of RoM
- (3) [AO 1] Measurement of degrees or radians of a circle

3. Look closely at this image.

Explain why the active stage of SALTAPS comes before the passive stage when recovering from an injury.

Marking points (maximum 2)

- (1) [AO 1] Active comes first because it involves the injured person trying to move the injured area themselves
- (2) [AO 1] Passive comes second because the first-aider can try to move the injured area if the person can't

4. Explain why an anaerobic athlete is likely to consume protein after training.

Marking points (maximum 2)

(1) [AO 2] Likely to have experienced some muscle damage due to high-intensity training/EIMD is likely

(2) [AO 2] Protein helps repair muscle damage

(3) [AO 2] Protein helps maximise training adaptations

5. This image shows a lever arm illustrated onto an ankle performing plantar flexion.

Describe the position of two of the missing lever components.

Marking points (maximum 2)

(1) [AO 2] Effort will be pointed upward in the direction of the gastrocnemius

(2) [AO 2] Load will be in line with the tibia/Load is in-between the load and fulcrum

(3) [AO 2] Fulcrum is the contact point between the foot and floor

6. Describe the process of gaseous exchange at the alveoli.

Marking points (maximum 4)

- (1) [AO 1] Occurs via diffusion
- (2) [AO 1] Net movement of gases from high to low concentration
- (3) [AO 1] Across a partially permeable membrane
- (4) [AO 1] Net movement of oxygen from the alveolus to the capillary DOWN the concentration gradient
- (5) [AO 1] Net movement of carbon dioxide from the capillary to the alveolus DOWN the concentration gradient

7. Look closely at this image of a squat exercise and associated table.
Analyse the movement in each phase to complete the table.

Marking points (maximum 6)

- (1) [AO 3] A is hip flexion/A is flexion
- (2) [AO 3] B is gluteus maximus
- (3) [AO 3] C is isotonic eccentric/C is eccentric
- (4) [AO 3] D is hip extension/D is extension
- (5) [AO 3] E is gluteus maximus
- (6) [AO 3] F is isotonic concentric

8. The glycolytic system is the most beneficial energy system to a 200m swimmer.

Justify this statement.

Marking points **(maximum 6)**

- (1) [AO 2] 200m swimming is relatively short duration, as it lasts in the region of 120 seconds at elite level
- (2) [AO 2] 200m swimming is high intensity
- (3) [AO 2] 200m swimming is predominantly anaerobic
- (4) [AO 3] Glycolytic is crucial because the aerobic system cannot respond immediately to the demand for energy
- (5) [AO 3] Glycolytic is crucial because the ATP-PC system fatigues too rapidly
- (6) [AO 3] Glycolytic system is crucial, especially in the middle and later stages of the race

9. Look closely at this image.

Explain why the blue and green plots are different.

Marking points **(maximum 4)**

- (1) [AO 1] Green is rest and blue is during exercise
- (2) [AO 1] Bohr shift has caused a shift of the curve to the right
- (3) [AO 1] Exercise causes blood and muscle pH to decrease and move the curve right
- (4) [AO 1] Exercise causes blood and muscle temperature to increase and move the curve right
- (5) [AO 1] Blue curve shows an increased dissociation of oxygen at the thigh muscle
- (6) [AO 1] Additional 20% of oxygen dissociated

10. Creatine supplements and carbo-loading are nutritional ergogenic aids. Compare their use for a 100m sprinter.

Marking guidance

Each correct point must reference BOTH creatine and carbo-loading to be credited.

Marking points (maximum 5)

- (1) [AO 3] Creatine is a training supplement, whereas carbo-loading is a performance aid
- (2) [AO 3] Creatine is taken daily, whereas carbo-loading is done in the week before competition only
- (3) [AO 3] Creatine helps to increase power, whereas carbo-loading increases CV endurance
- (4) [AO 3] Creatine aids the ATP-PC system, whereas carbo-loading aids the aerobic system
- (5) [AO 3] Both creatine and carbo-loading are legal for a sprinter
- (6) [AO 3] Creatine is highly relevant to a 100m sprinter, whereas carbo-loading is not

11. Describe the one-repetition maximum test for strength.

Marking points (maximum 2)

- (1) [AO 1] Single repetitions are repeated until a maximal lift is found
- (2) [AO 1] Sufficient rest between individual repetitions
- (3) [AO 1] Muscle-group-specific/Lift specific
- (4) [AO 1] Used to measure training intensity/%1RM

12. Describe PNF stretching.

Marking points (maximum 4)

- (1) [AO 2] Partner assists the stretch/Partner-assisted/Partner
- (2) [AO 2] Complete a static passive stretch/Hold a static passive stretch/Static passive stretch
- (3) [AO 2] Followed by an isometric contraction of agonist/Isometric contraction of the agonist/Isometric contraction
- (4) [AO 2] Relax the agonist for a few moments and repeat the stretch/Relax the agonist and repeat the stretch
- (5) [AO 2] Repeat the stretch/Repeat
- (6) [AO 2] Stretch the agonist through a greater RoM/Stretch the agonist further/Increased intensity of the stretch

13. Explain why endurance runners have a high tendency to experience chronic injuries.

Marking points (maximum 2)

- (1) [AO 2] Endurance running involves a lot of repeated movements at the hip, knee and ankle
- (2) [AO 2] Endurance running is weight-bearing
- (3) [AO 2] High tendency for the development of shin splints/ITBS/Painful knees

14. Explain how a sprained ankle should be treated.

Marking points (maximum 3)

- (1) [AO 2] Immobilise the ankle
- (2) [AO 2] Consider painkillers or anti-inflammatories
- (3) [AO 2] PRICE
- (4) [AO 2] Strap or brace the joint
- (5) [AO 2] Gradual return to movement/Non-dynamic activity first
- (6) [AO 2] Return to dynamic movement after full recovery

15. Analyse the impact of long-term exercise on lifestyle diseases related to the cardiovascular system.

Marking points (maximum 4)

- (1) [AO 3] Reduction of LDL cholesterol/Removal of plaque deposits
- (2) [AO 3] Decreased chance of atherosclerosis
- (3) [AO 3] Prevention of hardening arteries/Prevention of arteriosclerosis/Prevention of calcification of arteries
- (4) [AO 3] Prevention of hypertension/Decreased blood pressure
- (5) [AO 3] Cardiac hypertrophy/Increased resting stroke volume/Increased maximal cardiac output

16. Explain why a knowledge of Newton's second law is beneficial to a high jumper in track-and-field athletics.

Marking points (maximum 2)

- (1) [AO 2] They know that the more force applied, the greater the vertical acceleration
- (2) [AO 2] They know that if they apply force to the ground in the correct direction, their acceleration will be in the correct direction/More accurate angle of attack

17. Describe the balance of vertical forces for a high jumper at the moment of take-off.

Marking guidance

For students answering this question on paper: Accept drawing as an alternative type of response to prose.

Marking points (maximum 3)

- (1) [AO 2] Weight force will be vertically downward toward the centre of the earth
- (2) [AO 2] GRF will be vertically upward from the ground/From the point of contact between the foot and the ground
- (3) [AO 2] W is less than GRF / $W < GRF$
- (4) [AO 2] Causing net vertical force upwards
- (5) [AO 2] Causing upwards acceleration

18. Using your knowledge of the centre of mass, explain why an elite high jumper is likely to use a Fosbury flop technique.

Marking points (maximum 6)

- (1) [AO 2] At take-off, the jumper can raise their centre of mass by raising arms and non-jumping knee
- (2) [AO 2] Causing the CoM to move a higher take-off point
- (3) [AO 3] The CoM's vertical displacement is predetermined at take-off
- (4) [AO 3] FF technique involves arching over the bar
- (5) [AO 2] So that one body segment at a time passes above the bar
- (6) [AO 2] Whilst the majority of mass remains below the bar level at any moment
- (7) [AO 2] Meaning the CoM can travel below the level of the bar
- (8) [AO 2] FF technique allows the jumper to out-jump the peak of their CoM

19. Describe the factors affecting the air resistance of a **fast-moving** projectile in sport.

Marking points (maximum 4)

- (1) [AO 1] Projectile is likely to be light/Low weight
- (2) [AO 1] Projectile is likely to be aerodynamic in order to move fast
- (3) [AO 1] Projectile will have a high release velocity
- (4) [AO 1] Projectile is likely to have smooth surface characteristics

20. Table tennis players often use backspin when they are out of position during a rally. Explain how they achieve this.

Marking guidance

Do not credit any responses which explain why a performer would do this. Answers such as 'low to the net' or 'slower travel in order to regain position' are not the focus of the question.

The question asks how to achieve backspin specifically.

Accept drawings as an alternative answering format to prose.

Marking points (maximum 5)

- (1) [AO 1] Apply an eccentric force to the ball/Hit the ball below the centre of mass
- (2) [AO 1] Causes the ball to spin around its axis
- (3) [AO 1] Ball carries a boundary layer of air as it spins
- (4) [AO 1] Boundary layer collides with oncoming air below the ball
- (5) [AO 1] Causing the air below the ball to slow
- (6) [AO 1] Causing high pressure below the ball
- (7) [AO 1] Boundary layer moves in the same direction as the oncoming air above the ball
- (8) [AO 1] Causing the air above the ball to move more quickly
- (9) [AO 1] Causing low pressure above the ball
- (10) [AO 1] Pressure differential is created
- (11) [AO 1] Magnus lift force created/Up force created

21. After a track-and-field athlete puts a shot, their breathing helps them to recover from the energy release.

Explain how the mechanics of breathing change to help an anaerobic athlete recover.

Analyse the flight path of a well-put shot.

Marking guidance

20 Mark Guidance

Dear colleagues, it is important to mention about this question that the initial experience of recovery after a shot is putted is elevation or increase. As a putter enters the circle, their breathing depth will be close to resting levels and, once the putt has been completed, it will deepen as the aerobic processes attempt to recover the anaerobic bout. This is what we are trying to capture in the A&P element of this question. We strongly believe that A-level PE students study OCR A-level are expected to understand this and we hope that this question and associated mark scheme can illuminate these points in preparation for the summer assessments. We encourage you to read the specification document pages 10 (last content box) and 11 (last content box) for reference. James

Marking points (maximum 20)

(1) [AO 1] Increase in tidal volume

(2) [AO 1] Decrease in IRV

- (3) [AO 1] No change in ERV
- (4) [AO 2] Breathing depth increases after the throw
- (5) [AO 2] Breathing frequency remains the same after the throw
- (6) [AO 1] Increased breathing depth is caused by increased force of contraction of the diaphragm
- (7) [AO 1] Increased breathing depth is caused by increased force of contraction of the external intercostals
- (8) [AO 2] If enough energy is released, additional inspiratory muscles such as the sternocleidomastoid and scalenes could be recruited
- (9) [AO 2] Leads to a GREATER change in pressure in the thoracic cavity
- (10) [AO 2] Causing MORE air to be breathed in
- (11) [AO 1] Weight force is large
- (12) [AO 2] Because the shot is heavy
- (13) [AO 1] Air resistance is very low
- (14) [AO 2] Because the shot is travelling slowly
- (15) [AO 1] Parallelogram can be used to draw the resultant force
- (16) [AO 2] Resultant force is close to the weight
- (17) [AO 2] Weight force is dominant
- (18) [AO 3] Causing a symmetrical flight path/Parabolic flight path
- (19) [AO 3] Flight of the CoM of the shot is predetermined at release
- (20) [AO 3] Law of conservation of momentum applies/Newton's first law applies
- (21) [AO 3] Shot travels in a state of constant velocity until it strikes the ground and an external force is applied
- (22) [AO 3] Horizontal displacement is a direct result of the force applied
- (23) [AO 3] Horizontal displacement is a direct result of the angle of release
- (24) [AO 3] Horizontal displacement is a direct result of the height of release



OCR A-Level Physical Education **20 Mark Level Descriptors**

Level	Marks	Description
4	17-20	<ul style="list-style-type: none">• Detailed knowledge and excellent understanding (AO1)• Well-argued, independent opinion and judgements which are well supported by relevant practical examples (AO2)• Detailed analysis and critical evaluation (AO3)• Very accurate use of technical and specialist vocabulary• There is a well-developed line of reasoning which is clear and logically structured. The information presented is relevant and substantiated.
3	12-16	<ul style="list-style-type: none">• Good knowledge and clear understanding (AO1)• Independent opinions and judgements will be present but may not always be supported by relevant practical examples (AO2)• Good analysis and critical evaluation (AO3)• Generally accurate use of technical and specialist vocabulary• There is a line of reasoning presented with some structure. The information presented is in the most-part relevant and supported by some evidence.
2	7-11	<ul style="list-style-type: none">• Limited knowledge and understanding (AO1)• Opinion and judgement given but often unsupported by relevant practical examples (AO2)• Some evidence of analysis and critical evaluation (AO3)• Technical and specialist vocabulary used with limited success• The information has some relevance and is presented with limited structure. The information is supported by limited evidence.
1	1-6	<ul style="list-style-type: none">• Basic knowledge and little understanding (AO1)• Little or no attempt to give opinion or judgement (AO2)• Little relevant analysis or critical evaluation (AO3)• Little or no attempt to use technical and specialist vocabulary• The information is basic and communicated in an unstructured way. The information is supported by limited evidence and the relationship to the evidence may not be clear.
	0	No response or no response worthy of credit