

Examiners' report

AS LEVEL

PHYSICAL EDUCATION

**OCR Level 3 Advanced Subsidiary GCE
in Physical Education**

H155

For first teaching in 2016

H155/01 Summer 2025 series

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Introduction

Our examiners' reports are produced to offer constructive feedback on candidates' performance in the examinations. They provide useful guidance for future candidates.

The reports will include a general commentary on candidates' performance, identify technical aspects examined in the questions and highlight good performance and where performance could be improved. A selection of candidate responses is also provided. The reports will also explain aspects which caused difficulty and why the difficulties arose, whether through a lack of knowledge, poor examination technique, or any other identifiable and explainable reason.

Where overall performance on a question/question part was considered good, with no particular areas to highlight, these questions have not been included in the report.

A full copy of the question paper and the mark scheme can be downloaded from [Teach Cambridge](#).

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Paper 1 series overview

The question paper differentiated effectively between more successful well-prepared, knowledgeable candidates and those who were less successful. The more successful candidates were able to describe the process of proprioceptive neuromuscular facilitation (PNF), mechanical advantage and factors effecting VO₂ max effectively. They were able to make direct comparisons of dynamic and ballistic stretching techniques and applied stability to the body positions of the front row in rugby. The extended response question was less successfully responded to as few candidates had sufficient knowledge of the timing and composition of meals for an endurance performer to be able to evaluate.

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
• give a good evaluation of the timing and composition of meals in Question 4 • applied concepts of stability to technique of rugby front row • draw accurate force lines for Question 3 (b) (i) • justified examples of static and dynamic strength in Question 2 (c) • more than basic understanding of PNF • made direct comparisons in Question 2 (b) (ii) • covered AO1 AO2 AO3 well in Question 4.	• little or no knowledge of timing and composition of meals • used the exercise line for Bohr's shift graph • poor knowledge of PNF • not specific in considering factors affecting VO₂ max • wrote two separate unrelated paragraphs in the comparison for Question 2 (b) (ii) • arrow in wrong direction for friction in Question 3 (b) (i) • vague knowledge of mechanical advantage.

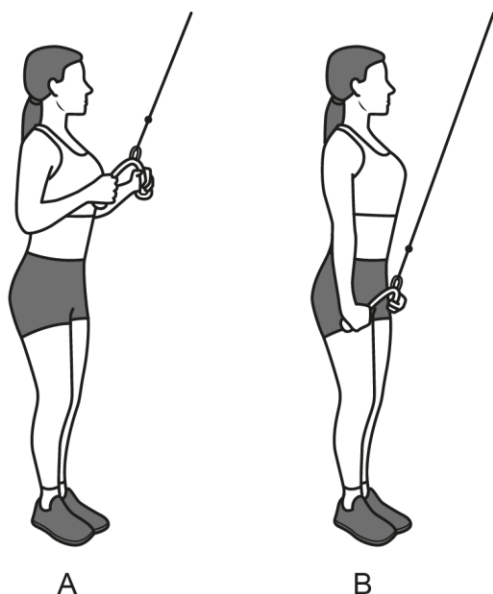
Section A overview

This section clearly provided a wide range of responses from candidates with a specific number of questions able to differentiate well. Centres should remind candidates to look at how many marks are available for each question and make sure that their response covers the full number of marks available.

Question 1 (a) (i) and (ii)

1

(a) The images show an athlete performing a cable push-down exercise.



(i) Complete the table to analyse the movement at the right elbow joint from position A to position B.

Joint	Movement	Plane of movement	Agonist muscle	Type of muscle contraction
Elbow				

[4]

(ii) Describe the structure and role of a motor unit in skeletal muscle contraction.

Structure

.....

Role

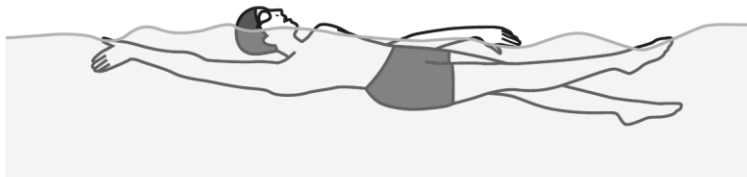
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[2]

Candidates more successfully responded to 'structure' than 'role'. Less successful responses to 'role' often missed the impulse from the brain/spinal cord/cell body and only referred to contraction.

Question 1 (b)

(b) The image shows a swimmer using backstroke technique.



Describe **four** mechanisms of venous return that assist the flow of blood back to the heart when swimming using backstroke technique.

- 1
- 2
- 3
- 4

[4]

Most candidates successfully responded to this question, but several did give the response 'gravity' as one of the main mechanisms.

Question 1 (c)

(c) Describe the mechanics of inspiration at rest.

-
-
-
-
-
-
- [5]

This question was responded to successfully and many candidates were given full marks. Successful responses included a clear logical order and many used concise bullet points to show the full answer.

Question 1 (d) (iii)

- (iii) Describe the effect of the right shift on the dissociation of oxygen from haemoglobin at the working muscles during exercise.

.....

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.....

..... [2]

Most candidates gave successful responses to this question. Successful common responses included point 2 on the mark scheme and a few candidates point 4.

Question 2 (a) (ii)

- (ii) Individual physiological make-up is a factor affecting VO_2 max.

Describe **three other** factors affecting VO_2 max.

1

.....

2

.....

3

..... [3]

Successful responses to this question reflected the points on mark scheme.

Assessment for learning



Candidates need to be very specific when describing certain factors to do with the components of fitness. Age is often considered where strength or VO_2 max deteriorate with age ignoring the 'peak' stage.

Question 2 (b) (i)

(b)

(i) Describe proprioceptive neuromuscular facilitation (PNF) stretching.

.....

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.....

..... [4]

Many candidates responded to this question less successfully. More candidates responded with point 6 and 9 on the mark scheme. Less successful candidates showed very basic knowledge of the technique and responses could have been phrased better. Often candidates responded with a learnt evaluation of PNF without answering the specifics of the question which asked for a description. This was seen in the exemplar below.

Exemplar 1

The proprioceptive neuromuscular facilitation stretching is using an object or a person to perform a stretch. An advantage of this is its cheap, reliable. An disadvantage of this is its not good for old people. A ^{neural} physiological benefit is the recruitment and a physiological benefit is the ^{elasticity} increases. [4]

Assessment for learning



Historically, PNF questions have not been responded to less successfully. It is an area of the specification which teachers need to focus on.

Question 2 (b) (ii)

(ii) Compare dynamic stretching with ballistic stretching.

.....

.....

.....

.....

..... [2]

Many less successful candidates were not given the comparison mark as they gave a description of the two types of stretching rather than comparing them. Where examples were used in the responses, they were often not from dynamic and no clear examples of ballistic. Points 1 and 5 on the mark scheme were the most common marks given.

Assessment for learning



Comparison questions show those candidates with successful exam techniques. More successful responses contain structured sentences where each point is directly compared using linking words like 'whereas'.

Question 2 (c)

(c) Justify why static strength and dynamic strength are important in a sports activity of your choice.

Each part of your answer should include a practical example showing the use of the type of strength in your chosen sports activity.

Sports activity

Static strength

.....

.....

.....

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.....

.....

Dynamic strength

.....

.....

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.....

.....

[6]

Candidates who chose football as a sport were less successful in their responses. More successful candidates gave an example and linked it to their justification of force. Very few candidates were given the final mark for impact on performance.

Question 2 (d) (ii)

(ii) Give **two** reasons why regular exercise might prevent a stroke.

- 1
-
- 2
-

[2]

Candidates were only required to give two reasons in their response to this question. Where more than two reasons were given only the first two were marked.

Question 3 (a) (ii)

(ii) Outline the effects of balanced forces and unbalanced forces on motion.

- Balanced forces
-
-
- Unbalanced forces
-
-

[2]

This question was successfully responded to by most candidates. Some candidates were not specific enough with description of unbalanced forces simply mentioning movement.

Question 3 (b) (i)

- (b) The image shows an athlete at take-off for a long jump. A dot marks their centre of mass.

This image of a male athlete during long jump take off has been removed due to third party copyright restrictions.

- (i) On the image, draw and label arrows to show the vertical and horizontal forces acting on the athlete.

[4]

Friction was often shown the wrong way, which impacted on the 'air resistance' mark. In some diagrams, it was also difficult to judge the length of the arrows. For a successful response to this question there should be a clear difference in arrow lengths.

Question 3 (b) (ii)

- (ii) The athlete has a mass of 78 kg.

Calculate their weight, assuming gravity = 10 m/s^2 .

.....
..... **[1]**

Some responses to this question were less successful as the units were omitted from the response.

Question 3 (c)

(c) The image shows rugby players preparing for a scrum.



Use your knowledge of centre of mass and stability to explain how a rugby player can remain stable as they prepare for the scrum.

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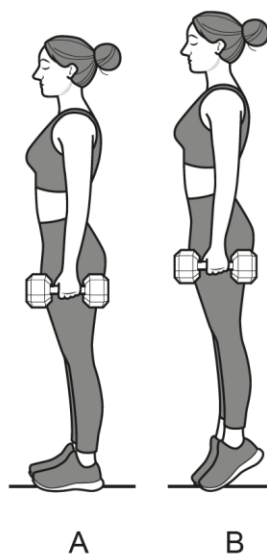
.....

..... [4]

Most candidates responded successfully to this question. A few less successful responses showed good knowledge of the factors but did not link them to the performers and simply listed the reasons so no marks could be given.

Question 3 (d)

- (d) The images show plantar flexion at the ankle during the upward phase of a calf raise from position A to position B.



Explain why the calf raise is an example of a 2nd class lever.

Explain why this class of lever has mechanical advantage.

.....

.....

.....

.....

.....

..... [6]

Many candidates who were successful in responding to this question included good use of diagrams hitting points 1 and 6 on the mark scheme. Point 1 was often given incorrectly as the ankle, point 3 was identified as the body weight but no reference to acting through the foot. Many successful responses were given marks for points 5 and 7 on the mark scheme (mechanical advantage).

Section B overview

This section demonstrated a broad variety of candidate responses, and the question proved effective at distinguishing levels of understanding. Centres are encouraged to advise candidates to pay close attention to the mark allocation for the question and make sure their responses are detailed enough to earn the full number of marks.

Question 4*

4* Explain how **neural** factors regulate a runner's heart rate during a marathon.

Evaluate the composition and timing of meals on the day of the race to aid performance in a marathon.

Use examples from a marathon race to support your answer.

[10]

Many candidates were given marks in Level 1 for their response to this question. This showed a basic knowledge of neural control and receptors and knowledge of meals prior and during competition. Some candidates included content relating to carbo loading weeks before the event which was not relevant.

A few candidates did produce responses which were given marks in the Level 2 bracket. More successful responses to this question showed accurate explanation of neural control, evaluation of composition and timing of meals and used correct technical knowledge throughout.

The first half of the question was responded to more successfully than the second half.

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