CAMBRIDGE TECHNICALS

OCR
Oxford Cambridge and RSA

Examiners' report

CAMBRIDGE TECHNICALS LEVEL 3 (2016)

SPORT AND PHYSICAL ACTIVITY

OCR Level 3 Cambridge Technical in Sport and Physical Activity

Certificate: 05826

Extended Certificate: 05827

Foundation Diploma: 05828

Diploma: 05829

OCR Level 3 Cambridge Technical in Sport and Physical Activity Development

Extended Diploma: 05872

Unit 1 Summer 2025 series

Version 1

Contents

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. 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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Unit 1 series overview

Candidates generally found this paper accessible and performed well this series.

Although many candidates wrote well, wrote fully and responded to each question set, many others showed confusion or misunderstanding of the requirements of each question. This revealed, for some, a lack of examination preparation.

Candidates should read each question carefully to ascertain what the examiner is referring to. For example, Question 12 (a) asks for a description of two positive long-term effects of regular training on the skeletal system, and some candidates linked their answers to the muscular system which did not gain credit. Candidates should check carefully which part of human physiology the question refers to.

There were areas of the specification for which candidates were clearly unprepared. For example, many candidates inaccurately responded to Question 18 (c) the role of the rectus abdominus as a respiratory muscle during exercise. It is important that candidates are taught and revise thoroughly all sections of the specification.

In extended response Question 21, candidates scored well for this examination series with many hitting the required points in the mark scheme and following carefully the guidance identified in the question, as well as linking their responses to the analysis of the movement during a press up to the correct joint, the elbow joint. Those that scored less well for this question did not use the guidance to lead them through the requirements of the question, or the responses provided were basic with limited reference to points required in the mark scheme or provided answers that linked to other joints in the body, e.g. shoulder joint.

Many candidates showed that they had been taught the specification effectively and had many opportunities to relate theory to practical examples. The more successful candidates read each question carefully and often made a few notes before responding – especially for Question 21, the extended question.

Once again, most candidates finished the paper set in the time allocated with many requiring extra sheets of exam paper. Those that did use extra sheets often used these to expand on points they had made in response to Question 21.

Candidates who did well on this paper generally:	Candidates who did less well on this paper generally:
• identified accurately the requirements of each question and to which part of human physiology each question referred to • carefully considered each response when answering multiple-choice questions • responded with the depth required for this Level 3 qualification using appropriate technical vocabulary throughout • answered the extended response question (Question 21) fully with clear paragraphs covering all the elements required from the question.	• did not address the requirements of the question, giving irrelevant material in their responses • left whole questions unanswered • identified and described rather than explained when a full explanation was required • did not cover all the elements required in the extended response question.

Section A overview

The candidates who scored well in this section, which included multiple-choice questions, carefully considered each of the responses given and through a process of elimination came up with the correct answer. Those that scored less well appeared to have rushed through this section and did not carefully read the requirements of the question. Overall, in this series, this section was answered well.

Question 1

1 Which **one** of these describes the function of platelets?

(a) Aid clotting of blood ☐

(b) Carry oxygen ☐

(c) Fight infections ☐

(d) Transport nutrients ☐

[1]

Most candidates scored a mark for this question, identifying (a) as the correct answer although some identified (c) incorrectly.

Question 2

2 Which type of bone are the phalanges?

(a) Flat ☐

(b) Irregular ☐

(c) Long ☐

(d) Short ☐

[1]

Most candidates identified (c) as the correct answer, although those that scored 0 marks generally identified (a) incorrectly.

Question 3

3 Which **one** of these is a typical value for an untrained individual's stroke volume at rest?

(a) 7 ml ☐

(b) 70 ml ☐

(c) 700 ml ☐

(d) 7000 ml ☐

[1]

The question was generally answered correctly by most candidates (b) but some identified (c) incorrectly.

Question 4

4 Which muscle contracts to cause **flexion** of the vertebral column?

(a) Erector spinae ☐

(b) Pronator teres ☐

(c) Rectus abdominus ☐

(d) Supinator ☐

[1]

Many candidates chose (c), which was the correct response. Those that scored zero mostly chose (a).

Question 5

5 Which pair of bones are part of the **axial** skeleton?

(a) Cranium and clavicle ☐

(b) Cranium and sacrum ☐

(c) Sacrum and scapula ☐

(d) Scapula and clavicle ☐

[1]

The question was generally answered correctly by most candidates (b) but some identified (a) incorrectly.

Question 6

6 Which **one** of these is a long-term effect of exercise on the **muscular** system?

(a) Improved storage of lactic acid ☐

(b) Increased minute ventilation ☐

(c) Increased resistance to fatigue ☐

(d) Increased stroke volume ☐

[1]

Most candidates identified (c) as the correct answer although those that got the question incorrect generally identified (a) incorrectly.

Question 7

7 Which of these is an example of **horizontal abduction**?

(a) Performing lunges during a warm-up ☐

(b) Preparing to play a forehand drive shot in tennis ☐

(c) The downward phase of a biceps curl ☐

(d) Turning the head to breathe when swimming ☐

[1]

Many candidates chose (b) which was the correct answer. Those that scored zero mostly chose (d).

Question 8

8 What is the alternative name for cartilaginous joints?

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

Many candidates provided the correct answer, slightly moveable joints. Those that did score zero tended to state synovial joints which was incorrect.

Question 9

9 Describe the role of the aorta.

.....

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

The more successful candidates did well on this question being able to identify the correct response. Common incorrect answers discussed the aorta pumping blood through the heart chambers.

Question 10

10 Other than carbohydrates, name **one type** of food fuel for the **aerobic** energy system.

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

Many candidates provided a correct answer for this question. Those that did score zero tended to choose to identify other terms used for or linked to carbohydrates including glucose and glycogen which were incorrect.

Section B overview

This section includes questions covering the whole range of the specification and requires a variety of different responses, including identify questions, descriptions and explanations. The questions in this section often required short but accurate responses with the most successful candidates looking at the marks allocated and judging the length of their responses accordingly.

Generally, if 4 marks are available then four separate points should be made. More successful candidates again read each question with care to identify which physiological system was being referred to. Less successful candidates did not give specific enough information for marks to be given.

Assessment for learning

Candidates need to be aware of the meanings of the key command verbs as some candidates showed a misunderstanding of what was required by each question especially for 'describe' and 'explain' questions and answers.

Question 11 (a)

11

(a) Shape, support and movement are three functions of the skeleton.

Name **two** other functions of the skeleton.

1 .....

2 .....

[2]

Many candidates provided two correct answers, with the most common being protection and mineral storage. Marks were missed mainly due to candidates including the functions that had already been provided in the question: shape, support and movement. Less successful candidates also provided vague or incomplete answers such as 'storage' or 'production' which could not be given credit.

Question 11 (b)

(b) Explain how ligaments provide stability and mobility at a joint.

Stability .....

.....

Mobility .....

.....

[2]

Most candidates showed a good understanding of how ligaments provide stability and mobility at a joint, with more successful candidates scoring 2 marks. Less successful candidates tended to give answers that linked to tendons or muscles, which did not link to the question asked, therefore were not credited.

Question 12 (a)

12 Regular training can have both positive and negative long-term effects.

(a) Describe **two positive** long-term effects of regular training on the **skeletal** system.

1 .....

.....

2 .....

.....

[2]

Most candidates showed a good understanding of the positive long-term effects of exercise on the skeletal system with more successful candidates scoring 2 marks. Those who did not gain marks tended to repeat answers for both mark points, e.g. denser bones and stronger bones.

Question 12 (b)

(b) Describe **one negative** long-term effect of regular training on the **skeletal** system.

.....

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

The more successful candidates did well on this question being able to describe one negative long-term effect of regular exercise on the skeletal system. Common incorrect answers included osteoporosis or tendonitis (not skeletal system), both being not creditworthy.

Question 13

13 The image shows the major muscles of the upper leg viewed from both the front and back. Two muscles have been named.

The images of the major muscle groups have been removed due to third party copyright restrictions.

Name the muscles labelled **A**, **B**, **C** and **D**.

A .....

B .....

C .....

D .....

[4]

Many candidates scored 2 marks for this question, but those that did not gain marks generally confused the placing of the different muscles or did not know the correct names for muscle B – vastus medialis or C - semitendinosus. Less successful candidates could not name the individual muscles instead identifying 'quadriceps' and 'hamstrings' for multiple responses which was not creditworthy.

Question 14

14 Explain how the mix of muscle fibre types used during exercise changes as intensity increases.

.....

.....

.....

.....

.....

.....

[3]

The more successful candidates did well on this question whereas others found it more challenging. More successful candidates were able to explain how the usage of the different muscle fibres changed with different exercise **intensities.** The less successful candidates' responses explained which muscle fibre types were linked to different sporting activities that they were used in, which was not the focus of the question and therefore was not creditworthy.

Assessment for learning

Candidates must be taught the different intensities that link to the different muscle fibre types as well as the different sporting activities that link them

Exemplar 1

1) For low intensity exercise, [redacted] slow oxidative muscle fibres are used. For example a marathon
2) For moderate to high intensity exercise, fast oxidative muscle fibres are used. For example an 800m race.
3) For high intensity, explosive exercise, fast glycolytic muscle fibres are used. For example a shot putt [redacted] throw.

[3]

The exemplar scored the maximum 3 marks. The candidate was able to identify the correct intensities of exercise and then link these to the different muscle fibre types that were used for each.

Question 15 (a)

15 As blood flows through the heart it passes through various structures.

(a) Fill in the spaces to name the chamber, valves and blood vessel that blood passes through between the right atrium and the lungs.

Right atrium

↓

..... (valve)

↓

..... (chamber)

↓

..... (valve)

↓

..... (blood vessel)

↓

Lungs **[4]**

More successful candidates scored well on this question, scoring all 4 marks. Less successful candidates tended to confuse right ventricle (correct) with right atrium (incorrect) and likewise pulmonary artery (correct) with pulmonary vein (incorrect) potentially scoring zero for this question.

Question 15 (b)

(b) Describe the role of valves in the heart.

.....

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

Many candidates provided the correct answer, prevent backflow of **blood**. Those that scored 0 marks either didn't provide a response or only stated that they 'prevent backflow', which cannot be given the mark due to not linking to blood flow.

Question 16 (a)

16

(a) Define these terms:

Heart rate .....

.....

Cardiac output .....

.....

[2]

Many candidates provided the correct definitions of heart rate cardiac output. Those that did score 0 marks tended to define heart as BPM which was too vague for credit. For cardiac output they tended to state Q = SV x HR, which again was not credited as this is not a definition, it is the calculation used to find the cardiac output in a minute.

Question 16 (b)

(b) Explain how heart rate and cardiac output increase during exercise.

.....

.....

.....

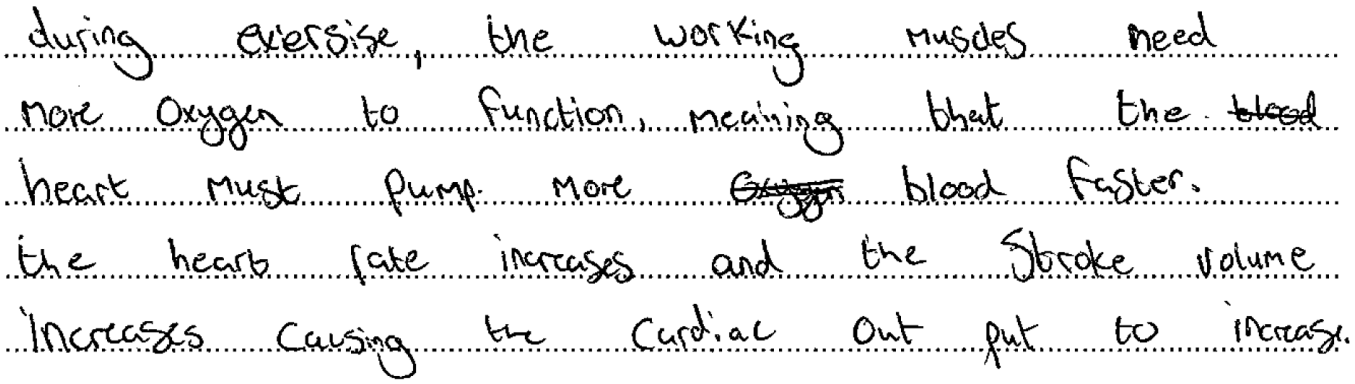
.....

.....

..... **[4]**

More successful candidates generally scored 2 marks or more with the most common correct responses being increased stroke volume and release of adrenaline. Less successful candidates either provided repeat responses of the question set, e.g. increased heart rate or cardiac output or discussed the need for an increase in oxygenated blood which was not creditworthy.

Exemplar 2


during exersise, the working muscles need more Oxygen to function, meaning that the ~~blood~~ heart must pump more ~~Oxygen~~ blood faster. the heart rate increases and the Stroke volume increases causing the Cardiac Out put to increase.

The exemplar scored 1 mark. The candidate was able to identify an increase in stroke volume for MP1, but the other responses were incorrect as they linked to the need for more oxygen or that the heart needed to pump more blood faster.

Question 17

17 The image below shows a vein and an artery.

Describe **three** differences between arteries and veins.

1 .....

.....

2 .....

.....

3 .....

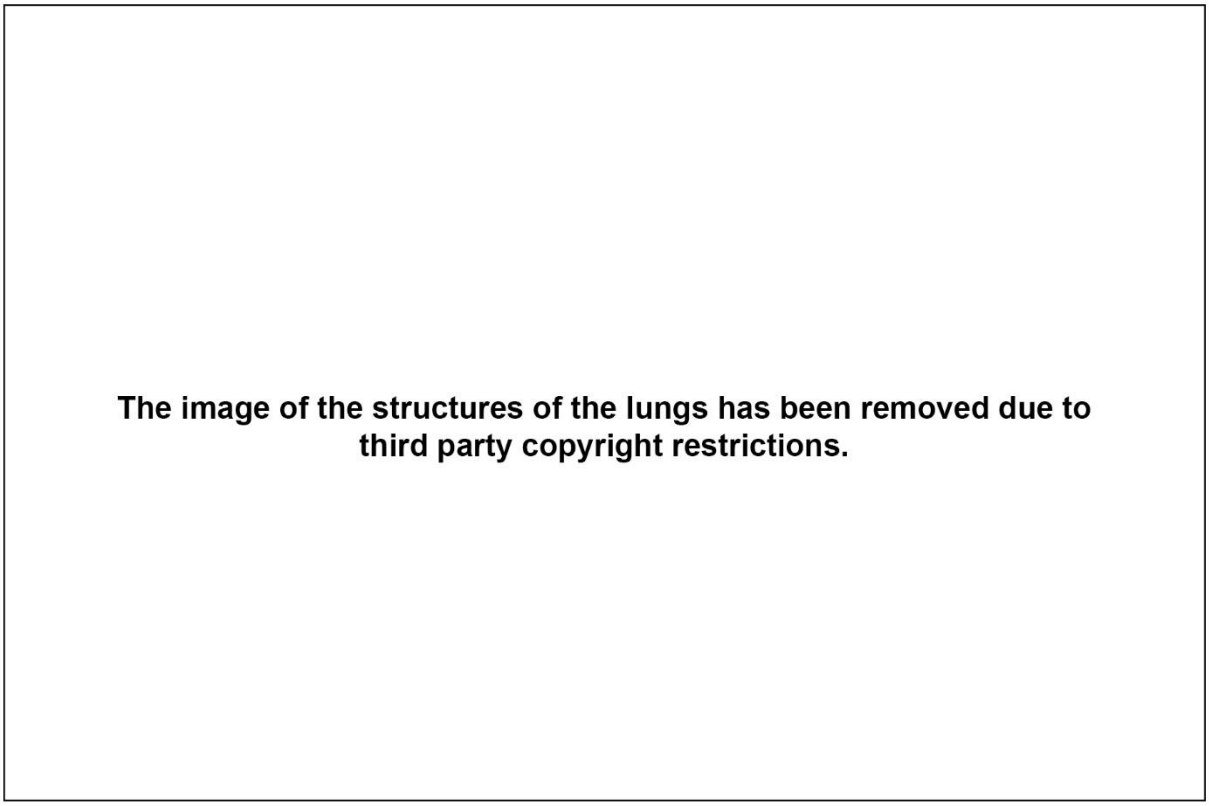
.....

[3]

Many candidates scored well on this question as they gave answers that provided a comparative response between arteries and veins, e.g. 'veins have valves and arteries do not'. More successful candidates generally scored 3 marks or more, with less successful candidates either providing answers that were too vague for credit or only identifying half an answer, e.g. 'veins have valves' which on its own was not creditworthy.

Question 18 (a)

18 The image below shows structures of the lungs. **Two** structures are labelled **incorrectly**.



(a) Identify which **two** structures are labelled **incorrectly**.

Give the **correct** name for each of these structures.

Incorrect label ..... Correct name .....

Incorrect label ..... Correct name .....

[4]

Most candidates scored well on this question on the respiratory system. More successful candidates tended to score 4 marks. Common errors shown by less successful candidates included mixing up the incorrect labels with correct ones therefore no marks could be given due to the incorrect label being inaccurate, e.g. candidates choosing the larynx as the incorrect label as opposed to the bronchiole.

Question 18 (b)

(b) Describe how the mechanics of breathing cause **inspiration** at rest.

.....

.....

.....

.....

.....

..... **[4]**

The more successful candidates did well on this question whereas others found it more challenging. Common errors included contradictory responses, e.g. the diaphragm contracts and moves up, and vague responses such as intercostals contract, when the correct answer needed to include **external** intercostals contract.

Question 18 (c)

(c) Describe the role of the rectus abdominus as a respiratory muscle during exercise.

.....

.....

.....

..... **[2]**

The more successful candidates did well on this question being able to successfully describe the role of the rectus abdominisa as a respiratory muscle during exercise. Common incorrect responses included relaxes during expiration and contracts during inspiration.

Exemplar 3

The rectus abdominis helps with expiration during exercise as it contracts to move the rib cage down and in leading to a decrease in the thoracic cavity volume and therefore increase in pressure ..... **[2]**

The exemplar scored the maximum 2 marks. The candidate was able to identify that during expiration the rectus abdominus contracts (MP1) and then moves the rib cage down (MP2). The rest of the response was not credited due to maximum marks being achieved but if the candidate had not included these points the rest of the response would also have been given 2 marks due to the candidate identifying that the two credited points led to a decrease in the thoracic cavity volume (MP3) and an increase the pressure (MP4).

Question 19

19 Fill in the paragraph to describe gaseous exchange at the alveoli.

In the alveoli the partial pressure of oxygen is ..... and the partial pressure of carbon dioxide is ..... .

In the capillaries the partial pressure of oxygen is ..... and the partial pressure of carbon dioxide is ..... .

The difference between the pressures of gases is known as a diffusion ..... .

Gases move from an area of ..... pressure to an area of ..... pressure.

The greater the difference in pressures, the ..... the rate of gaseous exchange.

[7]

More successful candidates generally scored well on this question. Less successful candidates tended to repeat the same answer for all spaces or confused where high and low should be placed, e.g. in the alveoli the partial pressure of oxygen is **low,** and the partial pressure of carbon dioxide is **high**.

Question 20 (a)

20

(a) Name the **two anaerobic** energy systems.

1 .....

2 .....

[2]

Most candidates scored 2 marks for this question but those that did not gain marks generally provided repeat responses, e.g. lactic acid system and lactate system.

Question 20 (b)

(b) State the **two** by-products of the **aerobic** system.

1 .....

2 .....

[2]

Most candidates scored 2 marks for this question but those that did not gain marks generally provided incorrect responses, e.g. sweat.

Question 20 (c)

(c) Two factors determine which energy system is used. One factor is **duration** of exercise.

What is the other factor?

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

Most candidates scored 1 mark for this question but those that scored zero marks generally provided the answer that was given in the question or an incorrect response, e.g. distance.

Section C overview

This section includes one extended question worth 10 marks.

This is marked using a levels mark scheme that includes credit for the quality of written communication. There are three levels: Level 1 showing a limited response, Level 2 which shows a competent response and Level 3 which shows a comprehensive response.

Most candidates scored Level 1 (1-4 marks) or Level 2 (5-7 marks). Fewer candidates scored in the top level (8-10 marks).

Question 21*

21* The image shows the performance of a press up.

The image of the performance of a press up has been removed due to third party copyright restrictions.

Analyse the movements of the elbow joint during **both phases** of the press up.

Your answer should include:

- Type of joint
- Articulating bones
- Main muscles acting and their roles in the movements.

[10]

This question asked for candidates to analyse the movements of the elbow during both phases of the press up. Candidates were directed to include information on the type of joint, articulating bones and the main muscles acting and their roles in the movements.

Many candidates were able to access Level 1 marks as they explained basic analytical points such as type of joint, articulating bones, main muscles used and the joint movements in both phases. Candidates who scored low marks also tended to discuss other joints in the body such as the shoulder or wrist that were not creditworthy.

Responses that allowed candidates to access Level 2 marks often detailed all of the points needed for a Level 1 response and also showed knowledge of antagonistic muscles along with the types of muscle contractions and functions in either the upward or the downward phase. The most common accurate response linked to upwards phase of the movement where candidates were able to outline that the triceps brachii was the agonist muscle performing a concentric contraction and the biceps brachii was the antagonist that relaxed and lengthened during the upwards phase.

The responses that allowed candidates to access Level 3 marks, as well as including the necessary information for a Level 1 and Level 2 response, included accurate muscle functions and contractions in both phases of the movements as well as identifying the role of the fixator along with accurate application in the upward and downward phase of the press up.

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