Please check the examination details below before entering your candidate information

| Candidate surname | Other names |
|---|---|
| | |

Centre Number | Candidate Number

# Pearson Edexcel Level 3 GCE

**Time** 2 hours 30 minutes

**Paper reference** **9PE0/01**

# Physical Education

## Advanced
## COMPONENT 1: Scientific Principles of Physical Education

**You must have:**
Calculator and ruler

Total Marks

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*

## Information

- The total mark for this paper is 140.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*
- The question marked with an **asterisk** (*) requires candidates to use their knowledge and understanding from across the course of study in their answer.

## Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

*Turn over* ▶

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Q:1/1/1/1

Pearson

## SECTION A – Applied anatomy and physiology

**Answer ALL questions. Write your answers in the spaces provided.**

**1** Define the following:

(i) stroke volume

**(1)**

(ii) cardiac output

**(1)**

**(Total for Question 1 = 2 marks)**

**2** Explain how venous return affects stroke volume and cardiac output.

**(4)**

**(Total for Question 2 = 4 marks)**

**3** Summarise why an endurance athlete might have bradycardia.

**(4)**

**(Total for Question 3 = 4 marks)**

**4** Identify **three** movements possible at the ankle joint.

(i)

**(1)**

(ii)

**(1)**

(iii)

**(1)**

**(Total for Question 4 = 3 marks)**

**5** Summarise, using **one** sporting example for each, the following types of muscle contraction: concentric, eccentric and isometric.

| Type of muscle contraction | Summary of the muscle contraction | Sporting example |
|---|---|---|
| **Concentric** | **(1)** | **(1)** |
| **Eccentric** | **(1)** | **(1)** |
| **Isometric** | **(1)** | **(1)** |

**(Total for Question 5 = 6 marks)**

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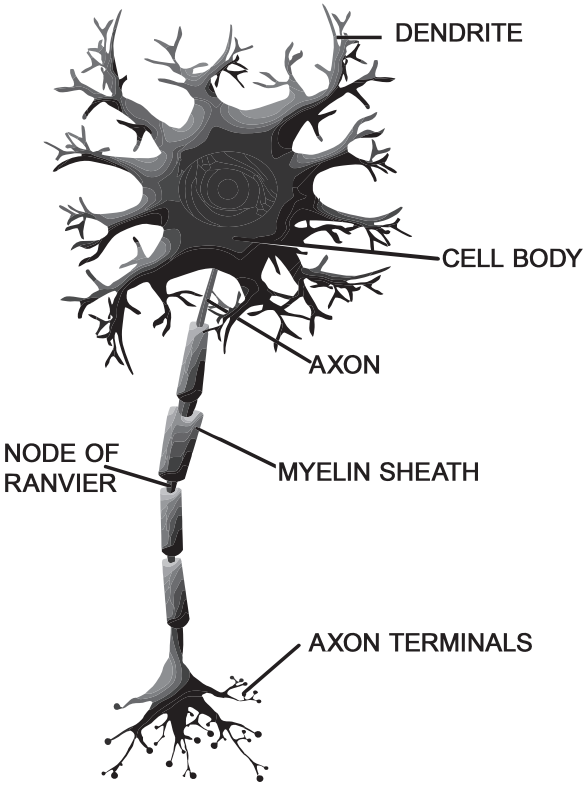
**6** Summarise the function of any **four** of the labelled parts of a motor neurone.




(Source: © ducu59us/Shutterstock)

**(4)**

**(Total for Question 6 = 4 marks)**

**7** Outline **four** possible healthy lifestyle changes to reduce the risk of cardiovascular diseases.

**(4)**

**(Total for Question 7 = 4 marks)**

**8** Following the resting stage, describe the remaining **four** stages of muscle contraction.

**(4)**

**(Total for Question 8 = 4 marks)**

**9** Following a period of strength training, an athlete may have more powerful muscular contractions.

Examine the structural adaptations that would enable this to occur.

**(8)**

**(Total for Question 9 = 8 marks)**

**10** Examine the physiological processes occurring in the fast component of recovery.

**(8)**

**(Total for Question 10 = 8 marks)**

**11** Examine the strategies a coach can use before, during and after a competition to enhance recovery processes.

**(8)**

**(Total for Question 11 = 8 marks)**

**12** Discuss how the cardiovascular and respiratory systems function both individually and in conjunction with each other.

**(15)**

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**(Total for Question 12 = 15 marks)**

**TOTAL FOR SECTION A = 70 MARKS**

**SECTION B – Exercise physiology and applied movement analysis**

**Answer ALL questions. Write your answers in the spaces provided.**

**13** Define the following:

(i) speed

**(1)**

(ii) velocity

**(1)**

(iii) acceleration

**(1)**

**(Total for Question 13 = 3 marks)**

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**14** The table shows the split times for an 800 m race.

| Distance travelled (metres) | Time (seconds) |
|---|---|
| 100 | 13 |
| 200 | 28 |
| 300 | 43 |
| 400 | 57 |
| 500 | 70 |
| 600 | 84 |
| 700 | 99 |
| 800 | 110 |

(a) Plot a graph of distance against time for this data set.

**(3)**

(b) Calculate the speed of the athlete at 600 m and 800 m.

| | |
|---|---|
| **Speed at 600 m** | **(1)** |
| **Speed at 800 m** | **(1)** |

(c) Calculate the average acceleration between 600 m and 800 m.

**(3)**

**(Total for Question 14 = 8 marks)**

**15** Outline **five** strategies that can be used to prevent sporting injuries.

**(5)**

**(Total for Question 15 = 5 marks)**

**16** Outline the **five** stages of POLICE in the rehabilitation of injuries.

**(5)**

**(Total for Question 16 = 5 marks)**


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**17** Outline the protocol for the multi-stage fitness test.

**(5)**

**(Total for Question 17 = 5 marks)**

**18** (a) Define plyometric training.

**(1)**

(b) Summarise the advantages and disadvantages of plyometric training.

**(6)**

**(Total for Question 18 = 7 marks)**

**19** Using examples, summarise the **two** main classifications of common sporting injuries and their causes.

| Classification of common sporting injuries | Cause | Example |
|---|---|---|
| (1) | (1) | (1) |
| (1) | (1) | (1) |

**(Total for Question 19 = 6 marks)**

**20** Examine different fitness tests used to measure aerobic power.

**(8)**

**(Total for Question 20 = 8 marks)**

**21** Using examples, examine how dietary supplements can be used to enhance sporting performance.

**(8)**

**(Total for Question 21 = 8 marks)**

***22** Analyse how an athlete can use periodisation to prepare for an Olympic or World Championship event.

Use your knowledge and understanding from across the course of study to answer this question.

**(15)**

**(Total for Question 22 = 15 marks)**

**TOTAL FOR SECTION B = 70 MARKS**
**TOTAL FOR PAPER = 140 MARKS**

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