Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel Level 1/2 GCSE (9–1)

Wednesday 22 May 2024

Afternoon (Time: 1 hour 30 minutes)

Paper reference **1PE0/01**

Physical Education

COMPONENT 1: Fitness and Body Systems

You do not need any other materials.

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 in Sections A, B and C.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

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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P 7 5 4 4 3 R A 0 1 2 8

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Answer ALL questions.

Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

SECTION A

Applied anatomy and physiology and movement analysis

1 (a) Which **one** of the following body systems protects the vital organs?

(1)

☐	**A** Cardiovascular
☐	**B** Muscular
☐	**C** Respiratory
☐	**D** Skeletal

(b) Which **one** of the following describes when **vasoconstriction** would take place in the digestive system?

(1)

☐	**A** Immediately after the performer has eaten
☐	**B** When the performer is active
☐	**C** When the performer is at rest
☐	**D** When the performer needs increased blood flow to the digestive system

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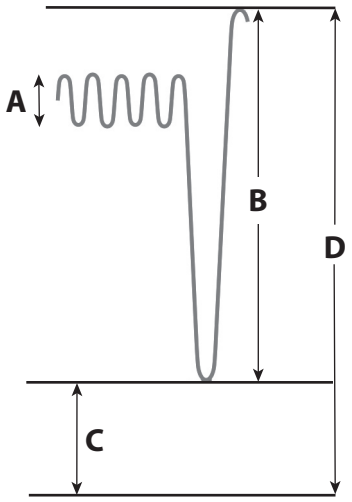
Figure 1 shows a graph of changing lung volumes.



(Source: © AL619)

Figure 1

(c) Which letter, **A, B, C** or **D**, represents tidal volume?

(1)

☒	**A**
☒	**B**
☒	**C**
☒	**D**

(d) Which **one** of the following structures allows gas exchange with the capillaries?

(1)

☒	**A** Alveoli
☒	**B** Bronchi
☒	**C** Bronchioles
☒	**D** Diaphragm

(Total for Question 1 = 4 marks)

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2 The ankle and shoulder are examples of joints in the human body.

Complete **Table 1** by:

(a) Stating the classification of each joint.

(b) Stating **one different** range of movement for each joint.

Joint	(a) Joint classification	(b) Range of movement
Ankle	(1)	(1)
Shoulder	(1)	(1)

Table 1

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Ligaments and tendons have an important role within the body.

(c) (i) State the role of **ligaments**.

(1)

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(ii) Explain, using an example, why **tendons** are important to games players.

(3)

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(Total for Question 2 = 8 marks)

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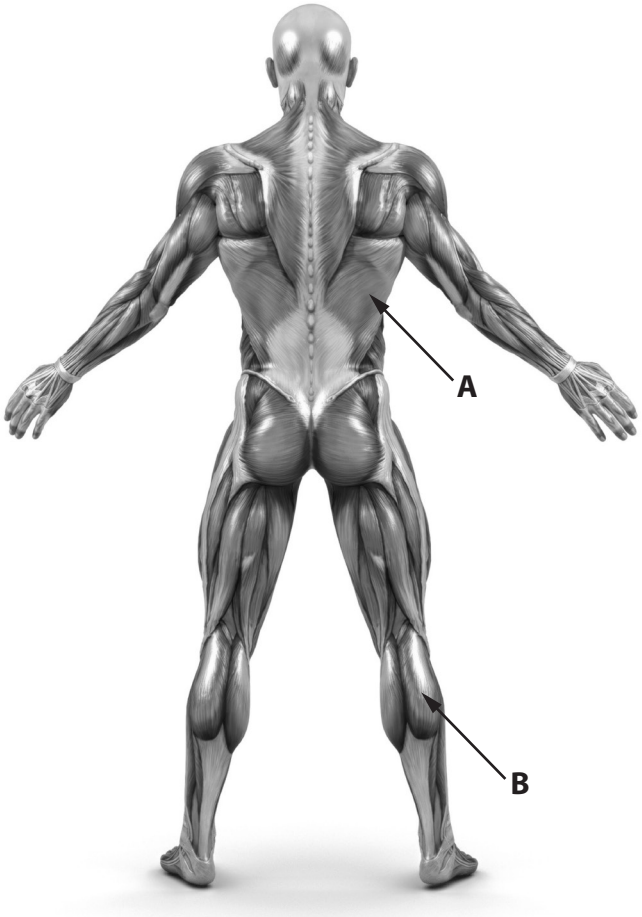
3 **Figure 2** shows the muscular system.



(Source: 123RF)

Figure 2

Complete **Table 2** by:

(a) Stating the name of the labelled muscles.

(b) Stating the role of the labelled muscles.

Labelled muscle	(a) Name of the muscle	(b) Role of the muscle
A	(1)	(1)
B	(1)	(1)

Table 2

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Muscles are classified as either voluntary, involuntary or cardiac.

(c) Explain, using an example, why the characteristics of **cardiac** muscle are important to a sports performer.

(3)

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(Total for Question 3 = 7 marks)

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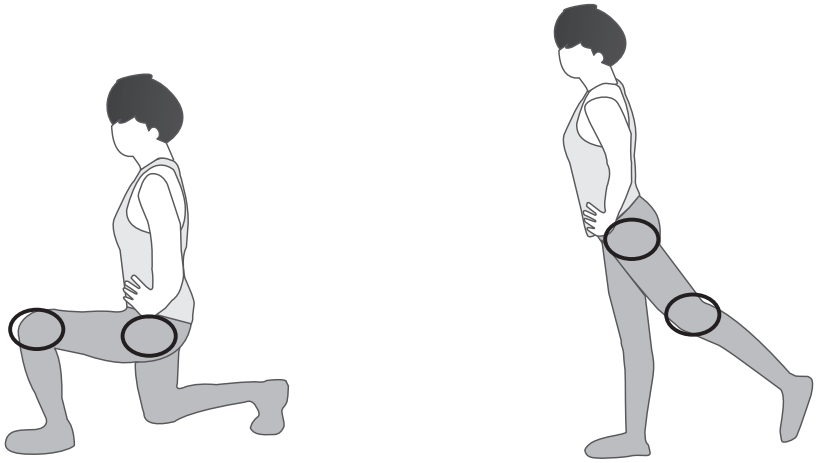
4 **Figure 3** shows a performer during a training session. Her left hip and left knee are circled.



Position A **Position B**

Figure 3

Analyse the actions of the antagonistic muscle pairs at the **circled** joints of the left **hip** and left **knee** that cause the movement from **Position A** to **Position B** in **Figure 3**.

(i) Left hip

(3)

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(ii) Left knee

(3)

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(Total for Question 4 = 6 marks)

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5 **Table 3** lists some common techniques and skills used in different sporting activities and places them into two different groups.

(i) Group 1	(ii) Group 2
Sprint start	Running for 30 minutes
Putting a shot	Swimming for 1 hour
Serving an ace in tennis	Cycling 50 miles

Table 3

(i) State the **muscle fibre type** most beneficial to all three activities listed in **Group 1**.

(1)

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(ii) State the **muscle fibre type** most beneficial to all three activities listed in **Group 2**.

(1)

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(Total for Question 5 = 2 marks)

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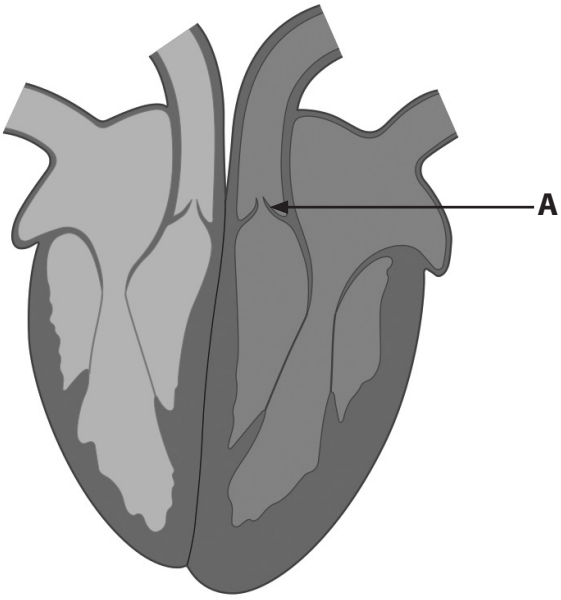
6 **Figure 4** shows a simplified diagram of the heart.



(Source: AL1160.jpg)

Figure 4

(a) Identify the structure labelled **A** in **Figure 4**.

(1)

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(b) State the function of the structure labelled **A** in **Figure 4**.

(1)

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(Total for Question 6 = 2 marks)

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7 Two functions of the cardiovascular system are transport of nutrients and clotting of open wounds.

(a) State **one other** function of the cardiovascular system that is important to a sports performer during physical activity.

(1)

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(b) Explain why the clotting of open wounds is an important function if a person is injured during physical activity.

(2)

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(Total for Question 7 = 3 marks)

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8 **Figure 5** shows a sketch of a lever system.

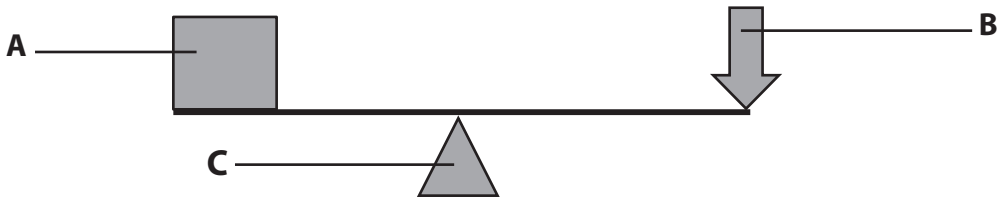

Figure 5

(a) Identify the components of the lever system, **A**, **B** and **C**, in **Figure 5**.

(i) **A**

(1)

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(ii) **B**

(1)

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(iii) **C**

(1)

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Figure 6 shows a trampolinist mid routine.

(Source: © John Lamb/GettyImages)

Figure 6

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To get the required height, the trampolinist pushes down on the trampoline each time she lands.

(b) State the name of the **lever system** acting at the **ankle** when the trampolinist pushes off the trampoline.

(1)

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The lever system used to push off the trampoline provides a mechanical advantage.

(c) Explain the **mechanical advantage** for the performer as she pushes off the trampoline.

(2)

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The trampolinist performs a piked front somersault as part of her routine.

(d) Identify the plane and axis when performing a piked front somersault.

(i) Plane

(1)

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(ii) Axis

(1)

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(Total for Question 8 = 8 marks)

TOTAL FOR SECTION A = 40 MARKS

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Write your answers in the spaces provided.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

SECTION B

Physical Training

9 **Table 4** shows part of an athlete's training programme.

Week	Main activity
1	Train for 60 minutes, 3 times a week Resistance exercises using body weight.
2	Train for 60 minutes, 4 times a week Resistance exercises using body weight.
6	Train for 70 minutes, 4 times a week Resistance exercises using body weight.

Table 4

(a) Which **one** of the following principles of training is the athlete applying to their training?

(1)

☒	**A** Individual needs
☒	**B** Progressive overload
☒	**C** Reversibility
☒	**D** Thresholds of training

(b) Which **one** of the following indicates the application of the FITT principle **intensity**?

(1)

☒	**A** Complete a long-distance run
☒	**B** Train 3 times each week
☒	**C** Train for 60 minutes
☒	**D** Use body weight as resistance

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Figure 7 shows a performer during an exercise session.

(Source: AL1209936.jpg)

(c) Which **one** of the following training methods is being used by the performer in **Figure 7**?

(1)

☒	**A** Aerobics
☒	**B** Fartlek
☒	**C** Pilates
☒	**D** Resistance

Table 5 shows ratings for the sit and reach test for adults.

Sex	Excellent	Very good	Average	Fair
Male	>27	17 – 26	6 – 16	0 – 5
Female	>30	21 – 29	11 – 20	4 – 10

(Source: adapted from https://www.topendsports.com/testing/norms/sit-and-reach.htm)

Table 5

(d) Which **one** of the following is the correct rating for a male, who scored 12 in the sit and reach test?

(1)

☒	**A** Excellent
☒	**B** Very good
☒	**C** Average
☒	**D** Fair

(Total for Question 9 = 4 marks)

10 Carlton is an endurance athlete. Carlton's training leads to a drop in his resting heart rate and an increase in the strength of his diaphragm.

Explain why these long-term training effects are an advantage for an endurance athlete.

(i) Drop in resting heart rate

(2)

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(ii) Increase in strength of diaphragm

(2)

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(Total for Question 10 = 4 marks)

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11 George is returning to badminton training after recovering from a long illness.

Figure 8 shows a relationship between performance, health, exercise and fitness.

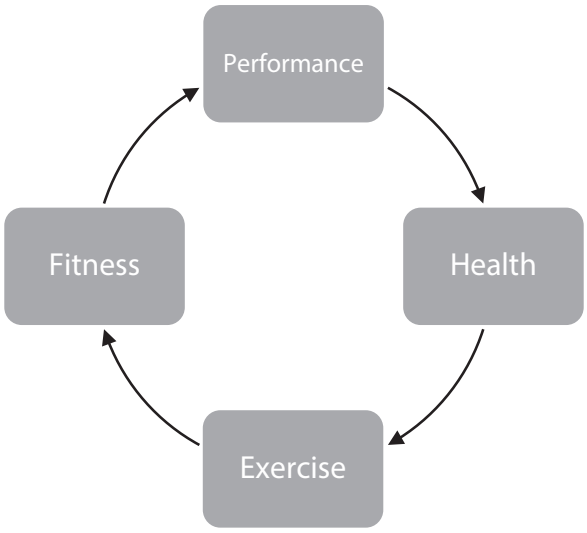

Figure 8

(a) Justify, using **Figure 8**, why George's badminton performance will be lower after his long break from playing.

(3)

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(b) Explain **one** reason why George retests his fitness **before** he starts training again after his illness.

(2)

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Table 6 shows two fitness tests George carries out.

Fitness test
Cooper 12-minute run
Cooper 12-minute swim

Table 6

(c) (i) State **one other** fitness test George could use to test his **cardiovascular fitness**.

(1)

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(ii) Explain which **one** of the fitness tests in **Table 6** is **less** appropriate to measure George's badminton fitness.

(3)

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(d) Describe the test protocol for the Cooper 12-minute run.

(3)

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(Total for Question 11 = 12 marks)

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12 A basketball coach carries out some fitness tests.

Complete **Table 7** by:

(a) Stating the name of the component of fitness being tested.

(b) Stating how the component of fitness is used in basketball.

Fitness test	(a) Component of fitness	(b) How component of fitness is used in basketball
Grip dynamometer	(1)	(1)
One-minute press-up	(1)	(1)

Table 7

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(c) **Table 8** shows the ratings of four basketball players' fitness tests.

Fitness test	Player 1	Player 2	Player 3	Player 4
Sit and reach	Excellent	Average	Excellent	Poor
30 m sprint	Average	Good	Very good	Excellent
Vertical jump	Average	Excellent	Very good	Very good
One-minute sit-up	Excellent	Poor	Very good	Average

Table 8

(i) State which player in **Table 8** has the highest rating for power.

(1)

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(ii) Justify, using the ratings in **Table 8**, why the coach would select Player 3 for the basketball team.

(2)

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(Total for Question 12 = 7 marks)

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13 Some athletes take performance-enhancing drugs (PEDs) to increase their performance.

Explain **one advantage** and **one disadvantage** of growth hormones (GH) for a **100 m sprinter** competing in a major competition.

(i) Advantage

(2)

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(ii) Disadvantage

(2)

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(Total for Question 13 = 4 marks)

TOTAL FOR SECTION B = 31 MARKS

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SECTION C

Extended writing question

14 Olivia plays football. She requires high levels of strength, cardiovascular fitness and agility for her playing position.

She trains regularly, using Fartlek training, circuit training and weight training.

Evaluate the importance of these **three** methods of training in improving Olivia's fitness for football.

(9)

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(Total for Question 14 = 9 marks)

TOTAL FOR SECTION C = 9 MARKS
TOTAL FOR PAPER = 80 MARKS

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