Write your name here

Surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Centre Number | | | | | |

Candidate Number | | | | |

Physical Education (Short Course)

Component 1: Theory

Wednesday 16 May 2018 – Morning
Time: 1 hour 30 minutes

Paper Reference
3PE0/01

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.
- 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.*
- You may use a calculator.

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 5 8 3 8 6 A 0 1 2 4

Pearson

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 ☒.

1 (a) Which **one** of the following bone classifications is **most** suitable for weight bearing activities?

(1)

- ☒ **A** Long bone
- ☒ **B** Flat bone
- ☒ **C** Short bone
- ☒ **D** Irregular bone

(b) Which **one** of the following is the correct classification of the knee joint?

(1)

- ☒ **A** Pivot
- ☒ **B** Ball and socket
- ☒ **C** Condyloid
- ☒ **D** Hinge

(c) Which **one** of the following correctly states the role of ligaments?

(1)

- ☒ **A** Join bone to bone
- ☒ **B** Join muscle to bone
- ☒ **C** Join tendons to muscles
- ☒ **D** Join muscle to muscle

(d) Which **one** of the following blood vessels takes oxygenated blood away from the heart to the body?

(1)

- ☒ **A** Pulmonary vein
- ☒ **B** Pulmonary artery
- ☒ **C** Aorta
- ☒ **D** Vena cava

(e) Identify where gas exchange takes place.

(1)

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

(f) Which **one** of the following movements uses a second class lever system?

(1)

- ☒ **A** Bending the arm at the elbow to lift a weight in a biceps curl
- ☒ **B** Heading the ball downwards in football
- ☒ **C** Lifting the body weight onto the toes from standing during calf raises
- ☒ **D** Straightening the leg at the knee to kick a ball in rugby

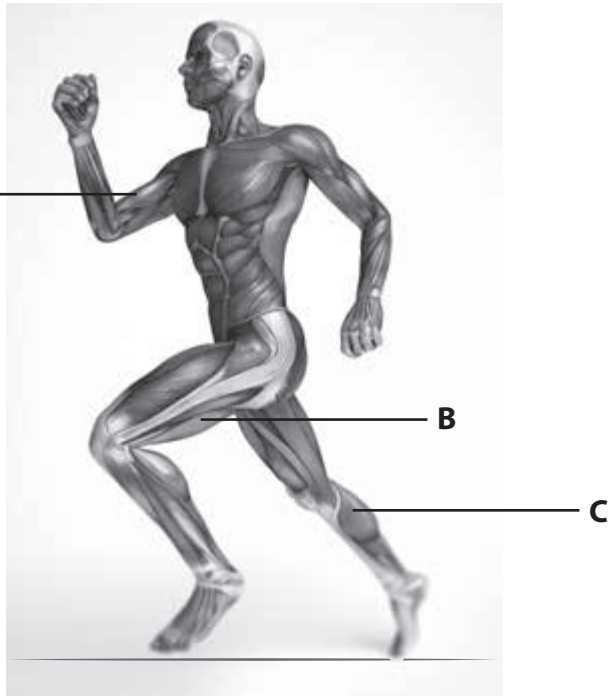
(g) Which **one** of the following athletes is **most** likely to use carbohydrate loading?

(1)

- ☒ **A** Marathon runner
- ☒ **B** Sprint runner
- ☒ **C** Long jumper
- ☒ **D** Discus thrower

(Total for Question 1 = 7 marks)

2 **Figure 1** shows the muscular system while running.



(Source: © Sebastian Kaulitzki/Shutterstock)

Figure 1

Complete **Table 1** by:

(a) Identifying the muscles labelled A, B and C in **Figure 1**.

(b) Stating the role of each muscle.

	(a) Muscle	**(b) Role of the muscle**
A	**(1)**	**(1)**
B	**(1)**	**(1)**
C	**(1)**	**(1)**

Table 1

(Total for Question 2 = 6 marks)

3 **Figure 2** shows a long jumper.

(Source: Photo by Tobias Heyer/Bongarts/Getty Images)

Figure 2

Examine the antagonistic muscle action taking place at the elbow and the hip in **Figure 2** that allows the long jumper to achieve this position.

Elbow

(3)

Hip

(3)

(Total for Question 3 = 6 marks)

4 **Figure 3** shows steeplechase athletes running a race.

The race involves running 3000m and jumping hurdles.

(Source: © FABRICE COFFRINI/Getty Images)

Running 3000m

(Source: © PEDRO UGARTE/Getty Images)

Jumping hurdles

Figure 3

Examine how **two** different muscle fibre types are used by the athletes in **Figure 3** during the different parts of the race.

(6)

(Total for Question 4 = 6 marks)

5 **Figure 4** shows a boxer who has a cut to the face.

(Source: Photo by Christian Fischer/Getty Images)

Figure 4

(a) Explain why platelets are important to athletes in contact sports such as boxing.

(2)

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(b) State **two** functions of plasma.

(2)

1 .....

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2 .....

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(c) To ensure blood flow to the working muscles, vasoconstriction occurs in some of the boxer's blood vessels.

State the meaning of the term vasoconstriction.

(1)

(d) Explain why the boxer includes protein in her diet.

(2)

(e) Explain why the boxer drinks water during the breaks in a boxing match.

(2)

(Total for Question 5 = 9 marks)

6 **Figures 5 and 6** show the percentages of oxygen, carbon dioxide and nitrogen in the air inhaled and exhaled by a long distance runner while training.

INHALED AIR

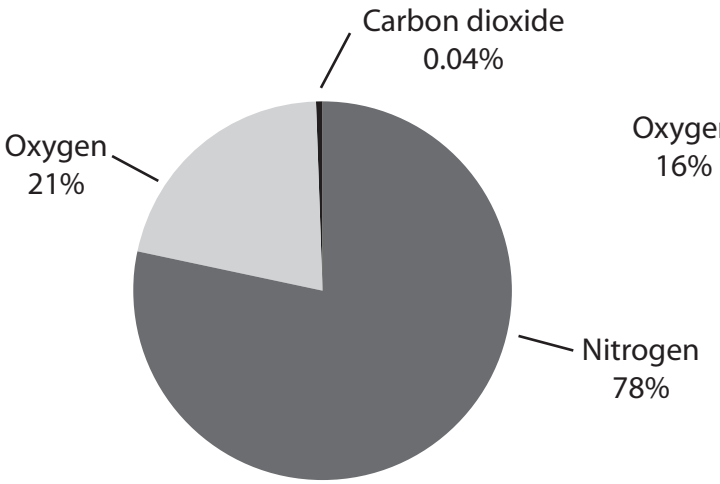

Figure 5

EXHALED AIR

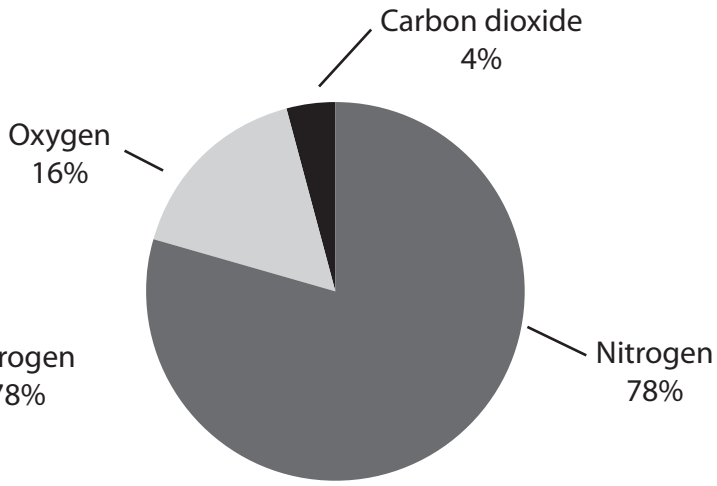

Figure 6

(a) Analyse, using the data in **Figures 5 and 6**, the difference between the runner's inhaled and exhaled air.

(2)

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(b) Explain why there is a difference in the amount of oxygen and carbon dioxide in inhaled and exhaled air whilst the long distance runner is training.

(4)

The graphs in **Figures 7 and 8** show the runner's depth and rate of breathing at rest and during exercise.

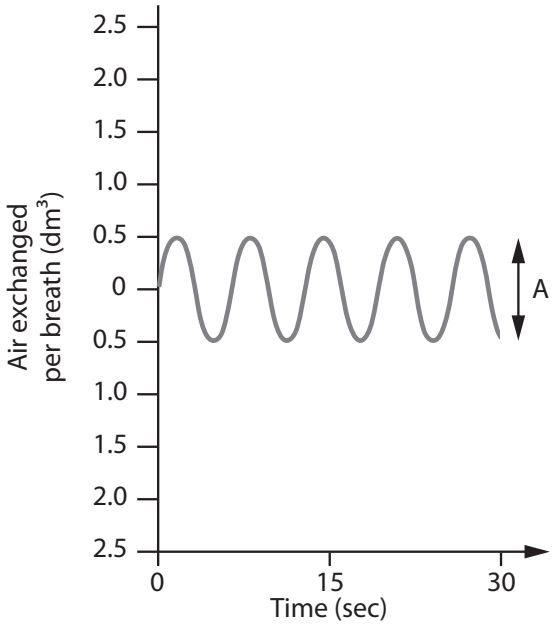

Figure 7 – At rest

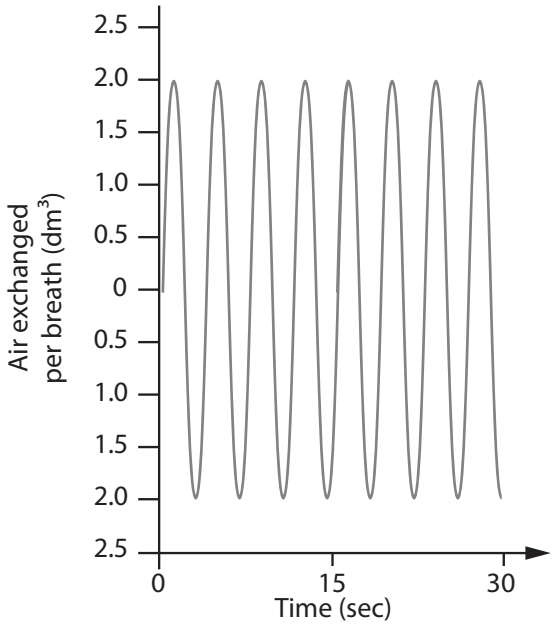

Figure 8 – During exercise

(c) (i) Identify, using the data in **Figure 7**, the name of the lung volume labelled A.

(1)

(ii) Explain **two** reasons why **Figure 8** represents the runner's breathing during exercise.

(4)

Reason 1

Reason 2

(Total for Question 6 = 11 marks)

7 Statements A and B in **Table 2** show how energy is released aerobically and anaerobically.

Statement	Energy release		
A	Glucose + oxygen	→	carbon dioxide + water + energy
B	Glucose	→	lactic acid + energy

Table 2

(a) Justify why **Statement A** in **Table 2** shows aerobic energy release.

(2)

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(b) Explain **two** functions of the cardiovascular system that enable a long distance cyclist to perform well in their event.

(6)

Function 1

Function 2

(Total for Question 7 = 8 marks)

8 Lever systems are made up of four parts. One of these parts is the lever.

(a) State the **other** three parts of a lever system.

(3)

1 .....

2 .....

3 .....

Third class lever systems work at a mechanical disadvantage.

(b) Explain the term mechanical disadvantage.

(2)

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(Total for Question 8 = 5 marks)

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9 Movement patterns occur in planes and around axes.

Complete **Table 3** by:

(a) Stating the plane **and** axis for the tucked somersault.

(b) Stating the plane **and** axis for the full twist.

	Movement pattern	Plane	Axis
(a)	 Tucked somersault	**(1)**	**(1)**
(b)	 Full twist	**(1)**	**(1)**

(Source: Photos by David Ramos/Getty Images, and Julian Finney/Getty Images)

Table 3

(Total for Question 9 = 4 marks)

10 Explain, using examples from sport, how height and muscle girth affect optimum weight.

Height

(3)

Muscle girth

(3)

(Total for Question 10 = 6 marks)

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11 Explain **one** reason, other than poor health and well-being, why smoking is a negative lifestyle choice for endurance athletes.

(3)

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(Total for Question 11 = 3 marks)

12 Jacob is 18 years old.

Table 4 shows some of Jacob's lifestyle choices.

Diet	Activity level	Work/rest/sleep balance
Greatest proportion of diet is fat	Sedentary	15 hours spent working 4 hours spent resting 5 hours spent sleeping

Table 4

Evaluate, using the data in **Table 4**, the impact of Jacob's lifestyle choices on his health and well-being.

(9)

(Total for Question 12 = 9 marks)

TOTAL FOR PAPER = 80 MARKS

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