Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel GCSE

Centre Number | | | | | |

Candidate Number | | | | |

Wednesday 15 May 2019

Morning (Time: 1 hour 30 minutes) | Paper Reference **3PE0/01**

Physical Education (Short Course)

Component 1: Theory

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.*

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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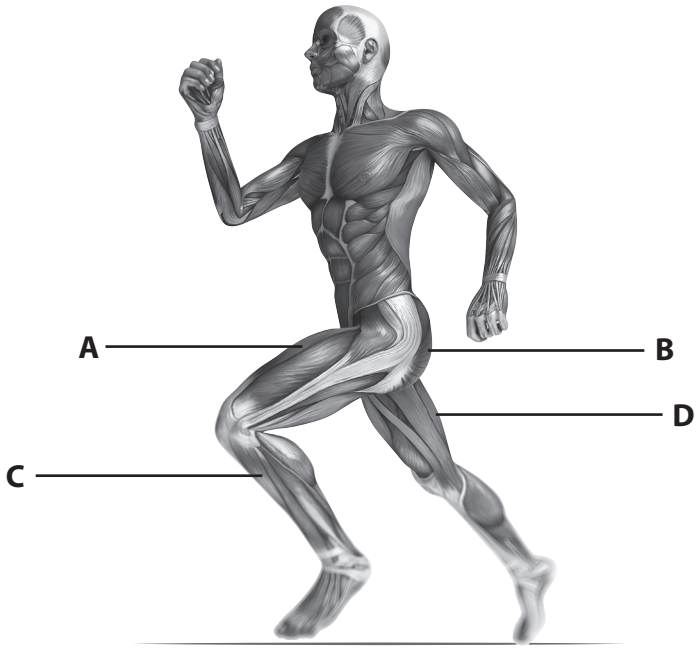
Answer ALL questions.

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



(Source: © Sebastian Kaulitzki/Shutterstock)

Figure 1

For Questions 1(a), 1(b) and 1(c) use Figure 1 to decide whether A, B, C or D is correct.

(a) Which **one** of the following is the gluteus maximus?

(1)

☒ **A** Muscle A

☒ **B** Muscle B

☒ **C** Muscle C

☒ **D** Muscle D

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(b) Which **one** of the following states the role of muscle D?

(1)

- ☒ **A** Extension of the leg at the hip
- ☒ **B** Extension of the leg at the knee
- ☒ **C** Flexion of the leg at the knee
- ☒ **D** Plantar flexion of the ankle

(c) Which **one** of the following muscles works antagonistically with muscle D?

(1)

- ☒ **A** Muscle A
- ☒ **B** Muscle B
- ☒ **C** Muscle C
- ☒ **D** Muscle D

(d) Which **one** of the following blood vessels carries oxygenated blood back to the heart?

(1)

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

(e) Which **one** of the following is responsible for clotting the blood?

(1)

- ☒ **A** Plasma
- ☒ **B** Platelets
- ☒ **C** Red blood cells
- ☒ **D** White blood cells

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(f) The data in **Table 1** shows oxygen levels in the blood before and after gas exchange.

	Oxygen level **before** gas exchange	Oxygen level **after** gas exchange
A	High	High
B	High	Low
C	Low	High
D	None	Low

Table 1

Which **one** of the following is the **most** likely level of oxygen in the blood before and after gas exchange at the muscle during exercise?

(1)

- ☒ **A** High – High
- ☒ **B** High – Low
- ☒ **C** Low – High
- ☒ **D** None – Low

(g) Which **one** of the following is found inside the lungs?

(1)

- ☒ **A** Bronchioles
- ☒ **B** Diaphragm
- ☒ **C** Semi-lunar valves
- ☒ **D** Septum

(Total for Question 1 = 7 marks)

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2 **Figure 2** shows the muscular system of a gymnast.

(Source: © Kjpargeter/Shutterstock)

Figure 2

(a) Examine the antagonistic muscle action taking place at the elbow in **Figure 2** that allows the gymnast to achieve this position.

(3)

(b) The gymnast in **Figure 2** is supporting her body weight using the bones in the wrist.

Classify the bones of the wrist.

(1)

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(c) Explain, using examples, **two** functions of the skeletal system that help the gymnast move her lower body into this position.

(i) Function 1

(3)

(ii) Function 2

(3)

(Total for Question 2 = 10 marks)

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3 **Figure 3** shows a basketball player jumping to shoot at the basket.

(Source: © icsnaps/Shutterstock)

Figure 3

(a) Explain the **main** muscle fibre type that is used to jump high when taking the basketball shot.

(3)

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(b) During a game of basketball vascular shunting takes place.

Describe what happens to blood flow during vascular shunting.

(4)

(c) Explain **one** reason why vascular shunting is necessary during a game of basketball.

(3)

(Total for Question 3 = 10 marks)

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4 Exercise causes short-term effects on our body systems.

Complete **Table 2** by:

(a) Stating **one** short-term effect of exercise on each of the named body systems.

(b) Giving a specific example of the importance of this short-term effect on the performer during exercise.

	(a) Short-term effect of exercise	**(b) Importance to the performer exercising**
Cardiovascular system	**(1)**	**(1)**
Muscular system	**(1)**	**(1)**
Respiratory system	**(1)**	**(1)**

Table 2

(Total for Question 4 = 6 marks)

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5 **Figure 4** shows a performer during a weight training session.

(Source: © Nicholas Piccillo/Shutterstock)

Figure 4

(a) Identify the class of lever system in use when the performer moves from standing onto her toes in **Figure 4**.

(1)

(b) Give another example of the use of **this** lever system, at the ankle, in a sporting situation of your choice.

(1)

(c) The lever system being used in **Figure 4** provides a mechanical advantage.

Define the meaning of the term mechanical advantage.

(1)

(Total for Question 5 = 3 marks)

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6 Complete the following statements about movement patterns.

(a) Movement patterns occur in body planes and around

..... .

(1)

(b) There are three main body planes: sagittal, transverse and

..... .

(1)

(c) A tucked front somersault takes place in the sagittal plane around the

..... .

(1)

(d) A full twist occurs in the transverse plane around the

..... .

(1)

(Total for Question 6 = 4 marks)

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7 State, using examples, **two** ways that training to increase fitness can have a **negative** effect on our physical health.

(i) Negative effect 1

(2)

(ii) Negative effect 2

(2)

(Total for Question 7 = 4 marks)

8 To make sure training is effective a training programme must be carefully designed, developed, monitored and evaluated.

Explain why it is important to monitor a training programme.

(3)

(Total for Question 8 = 3 marks)

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9 Mason is a 21-year-old sprinter.

State, using examples, **two** reasons why drinking alcohol would have a negative impact on Mason's sprinting performance.

(i) Reason 1

(2)

(ii) Reason 2

(2)

(Total for Question 9 = 4 marks)

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10 Michael has recently joined a running club to train with others for the Great North Run.

The Great North Run is a long distance race over 13.1 miles.

(a) Explain, using examples, how Michael's physical, emotional and social health could improve due to his training.

(i) Physical health

(2)

(ii) Emotional health

(2)

(iii) Social health

(2)

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Table 3 shows the percentage of carbohydrates in Michael's diet for the five days before his race.

Days before the race	Percentage of carbohydrates in diet
5	35
4	70
3	80
2	85
1	85

Table 3

(b) Examine, using the data in **Table 3**, how the change in Michael's diet will affect his performance in the race.

(4)

(Total for Question 10 = 10 marks)

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11 It is important for sports performers to be at their optimum weight when competing.

(a) Define the term optimum weight.

(1)

Table 4 states the weight and height of three different sports performers.

Sports performer	Weight (kg)	Height (m)
Rugby player	115	1.95
High jumper	77	1.95
Jockey	57	1.68

Table 4

(b) Justify, using the data in **Table 4**, why the high jumper has a different optimum weight compared to the other two sports performers.

(4)

(Total for Question 11 = 5 marks)

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12 Four students kept a record of the number of calories they ate (energy input) and the energy they used (energy expenditure).

Figure 5 shows the students energy input and energy expenditure.

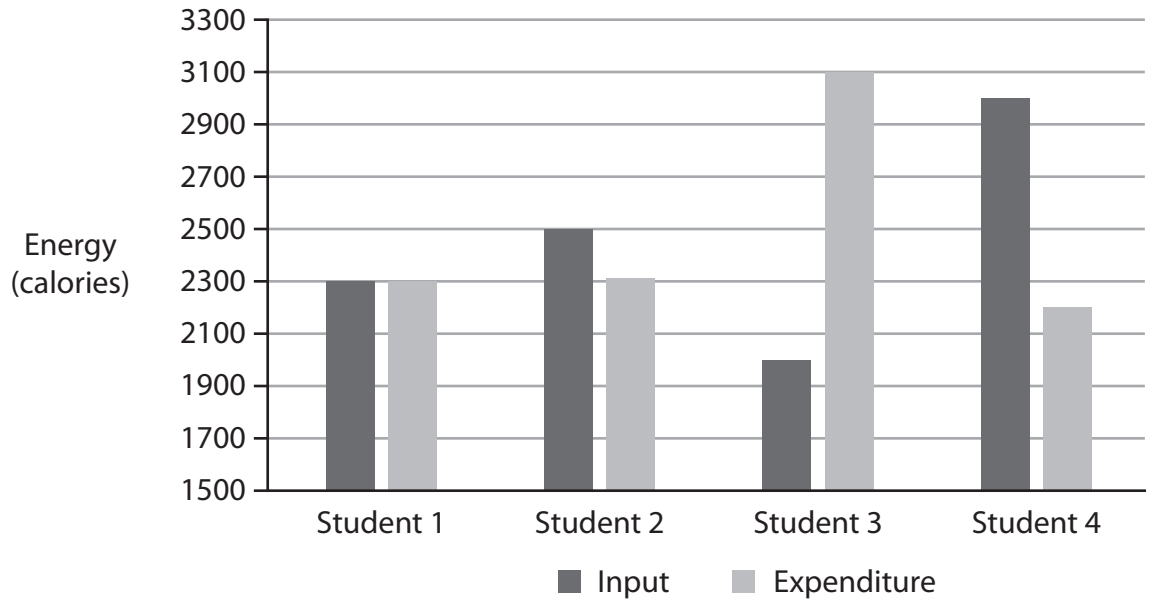

Figure 5

At the start of the training, each student is a healthy weight. The students take part in the same type of training but for different lengths of time.

(a) Identify, using the data in **Figure 5,** the student who completes the most training.

(1)

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(b) Analyse the data in **Figure 5** to determine which student is most likely to maintain a healthy weight.

(4)

(Total for Question 12 = 5 marks)

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13 Tennis players will work at different intensities during a match.

Figure 6 shows three different phases of a tennis match.

During a serve

During a long intense rally

Resting between games

(Source: © Clive Brunskill/Getty Images)
(Source: © Julian Finney/Getty Images)
(Source: © Andrew Yates/Getty Images)

Figure 6

Examine the importance of the respiratory system during the different phases shown in **Figure 6**.

(9)

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(Total for Question 13 = 9 marks)

TOTAL FOR PAPER = 80 MARKS

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