

**Pearson Edexcel GCSE  
Paper Reference 3PE0/01**

**Physical Education  
(Short Course)  
Component 1: Theory**

**Wednesday 15 May 2019 – Morning**

**Time: 1 hour 30 minutes, plus your  
additional time allowance**

**You do not need any other materials.**

**See the Instructions, Information and  
Advice on the next two pages.**

<b>Candidate surname</b>					
<b>Other names</b>					
<b>Centre Number</b>					
<b>Candidate Number</b>					

**Y58387RA**

## **Instructions**

- **Use BLACK ink or ball-point pen.**
- **FILL IN THE BOXES on the front 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.**

**(Turn over)**

## **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)**

**Answer ALL questions.**

**Write your answers in the space provided.**

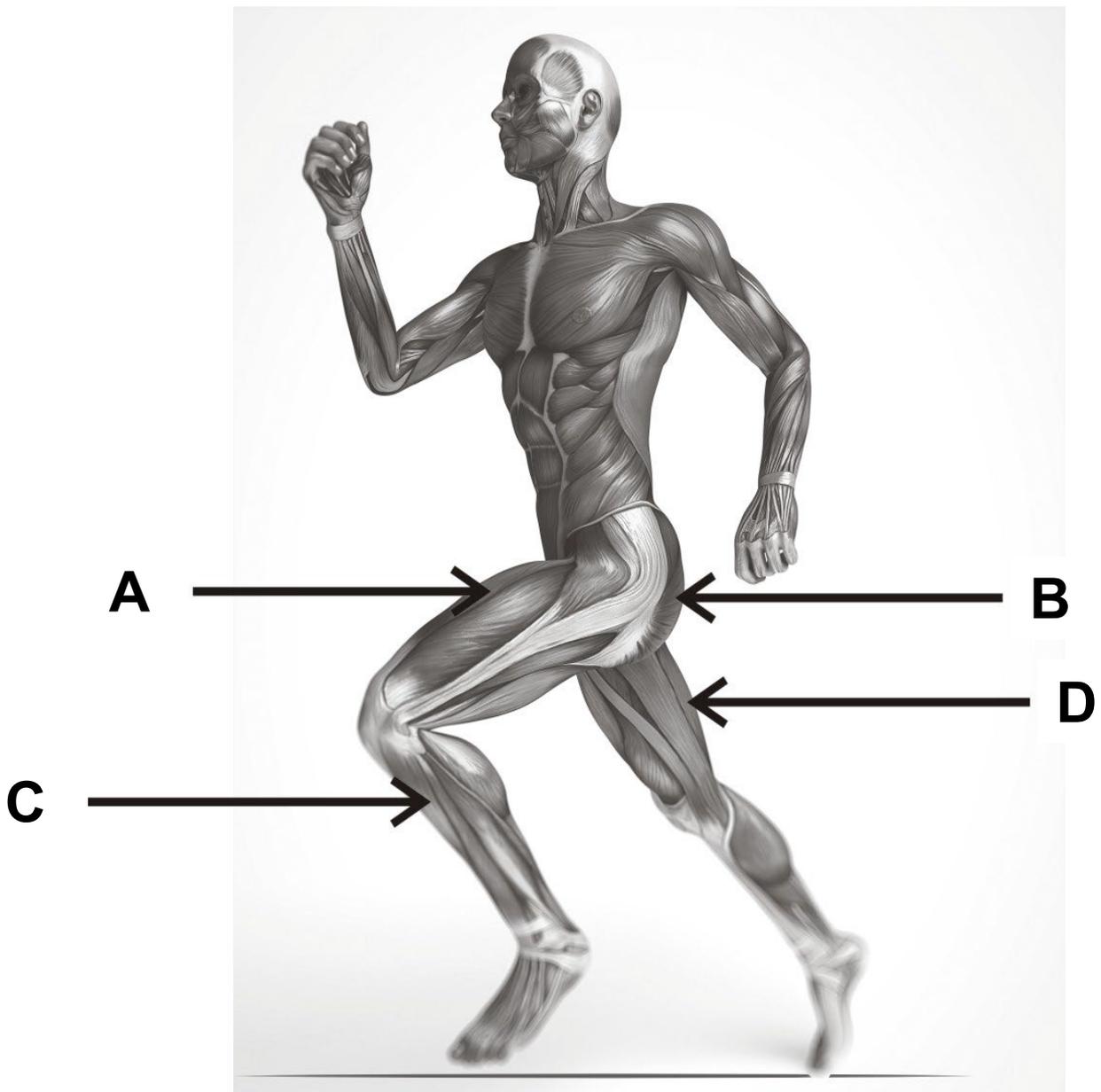
**Some questions must be answered with a cross in a box . If you change your mind about an answer, put a line through the box  and then mark your new answer with a cross .**

**(Question 1 begins on the next page)**

**(Turn over)**

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

**FIGURE 1**



**(Turn over)**

**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 mark)**

**A Muscle A**

**B Muscle B**

**C Muscle C**

**D Muscle D**

**(Question continues)**

**(Turn over)**

**(b) Which ONE of the following states the role of muscle D? (1 mark)**

- 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**

**(Question continues)**

**(Turn over)**

**(c) Which ONE of the following muscles works antagonistically with muscle D? (1 mark)**

**A Muscle A**

**B Muscle B**

**C Muscle C**

**D Muscle D**

**(Question continues)**

**(Turn over)**

**(d) Which ONE of the following blood vessels carries oxygenated blood back to the heart? (1 mark)**

**A Aorta**

**B Pulmonary artery**

**C Pulmonary vein**

**D Vena cava**

**(Questions continues)**

**(Turn over)**

**(e) Which ONE of the following is responsible for clotting the blood?  
(1 mark)**

**A Plasma**

**B Platelets**

**C Red blood cells**

**D White blood cells**

**(Question continues)**

**(Turn over)**

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

**TABLE 1**

	<b>Oxygen level BEFORE gas exchange</b>	<b>Oxygen level AFTER gas exchange</b>
<b>A</b>	High	High
<b>B</b>	High	Low
<b>C</b>	Low	High
<b>D</b>	None	Low

**(Continues on next page)**

**(Turn over)**

**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 mark)**

**A High – High**

**B High – Low**

**C Low – High**

**D None – Low**

**(Question continues)**

**(Turn over)**

**(g) Which ONE of the following is found inside the lungs? (1 mark)**

**A Bronchioles**

**B Diaphragm**

**C Semi-lunar valves**

**D Septum**

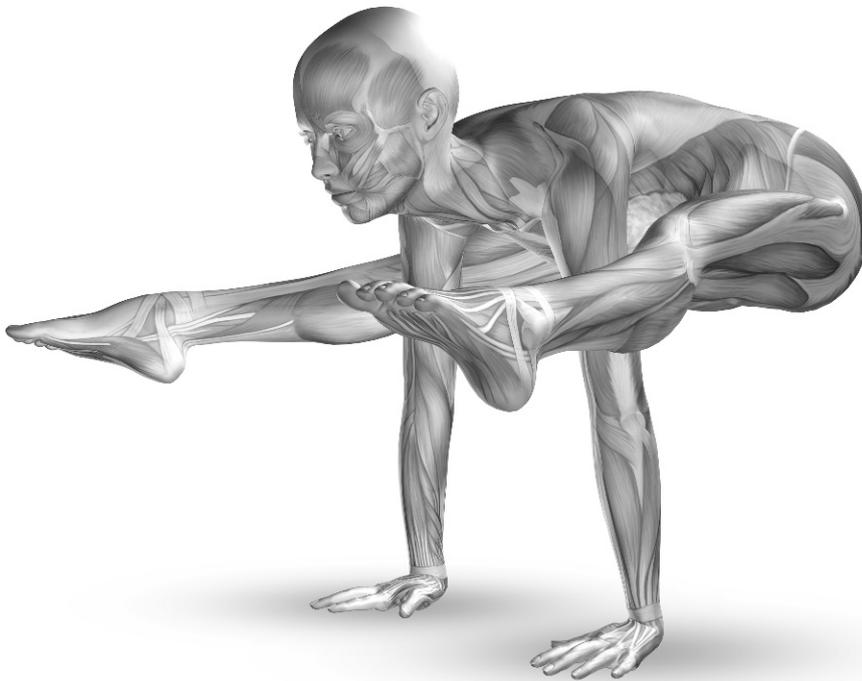
**(Total for Question 1 = 7 marks)**

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**(Turn over)**

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

**FIGURE 2**



**(Continues on next page)**

**(Turn over)**



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**(Question continues)**

**(Turn over)**

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

**Classify the bones of the wrist.  
(1 mark)**

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**(Question continues)**

**(Turn over)**

**(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 marks)**

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**(Continue answer on next page)**

**(Turn over)**

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**(Continue answer on next page)**

**(Turn over)**



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**(Total for Question 2 = 10 marks)**

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**(Turn over)**

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

**FIGURE 3**



**(Continues on next page)**

**(Turn over)**



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**(Question continues)**

**(Turn over)**

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

**Describe what happens to blood flow during vascular shunting.  
(4 marks)**

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**(Continue answer on next page)**

**(Turn over)**

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**(Question continues)**

**(Turn over)**





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

**Complete TABLE 2 (on the next page) 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.**

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

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**(Turn over)**

TABLE 2

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

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

**FIGURE 4**



**(Continues on next page)**

**(Turn over)**

- (a) Identify the class of lever system in use when the performer moves from standing onto her toes in FIGURE 4. (1 mark)**

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**(Question continues)**

**(Turn over)**

- (b) Give another example of the use of THIS lever system, at the ankle, in a sporting situation of your choice. (1 mark)**

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**(Question continues)**

**(Turn over)**

- (c) The lever system being used in FIGURE 4 provides a mechanical advantage.

Define the meaning of the term mechanical advantage. (1 mark)

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**(Total for Question 5 = 3 marks)**

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**(Turn over)**

**6 Complete the following statements about movement patterns.**

**(a) Movement patterns occur in body planes and around**

\_\_\_\_\_ . (1 mark)

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

\_\_\_\_\_ . (1 mark)

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

\_\_\_\_\_ . (1 mark)

**(Question continues)**

**(Turn over)**

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

**\_\_\_\_\_.** (1 mark)

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

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**(Turn over)**

**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 marks)**

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**(Continue answer on next page)**

**(Turn over)**

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**(Continue answer on next page)**

**(Turn over)**



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

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**(Turn over)**

**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 marks)**

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**(Continue answer on next page)**

**(Turn over)**



**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 marks)**

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**(Continue answer on next page) (Turn over)**

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**(Continue answer on next page)**

**(Turn over)**



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**(Total for Question 9 = 4 marks)**

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**(Turn over)**

**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 marks)**

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**(Turn over)**



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**(Continue answer on next page)**

**(Turn over)**



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**(Question continues)**

**(Turn over)**

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

**TABLE 3**

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

**(Continues on next page)**

**(Turn over)**

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

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**(Continue answer on next page)**

**(Turn over)**



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

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**(Turn over)**

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

**(a) Define the term optimum weight.  
(1 mark)**

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**(Question continues)**

**(Turn over)**

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

**TABLE 4**

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

**(Continues on next page)**

**(Turn over)**

**(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 marks)**

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**(Continue answer on next page)**

**(Turn over)**



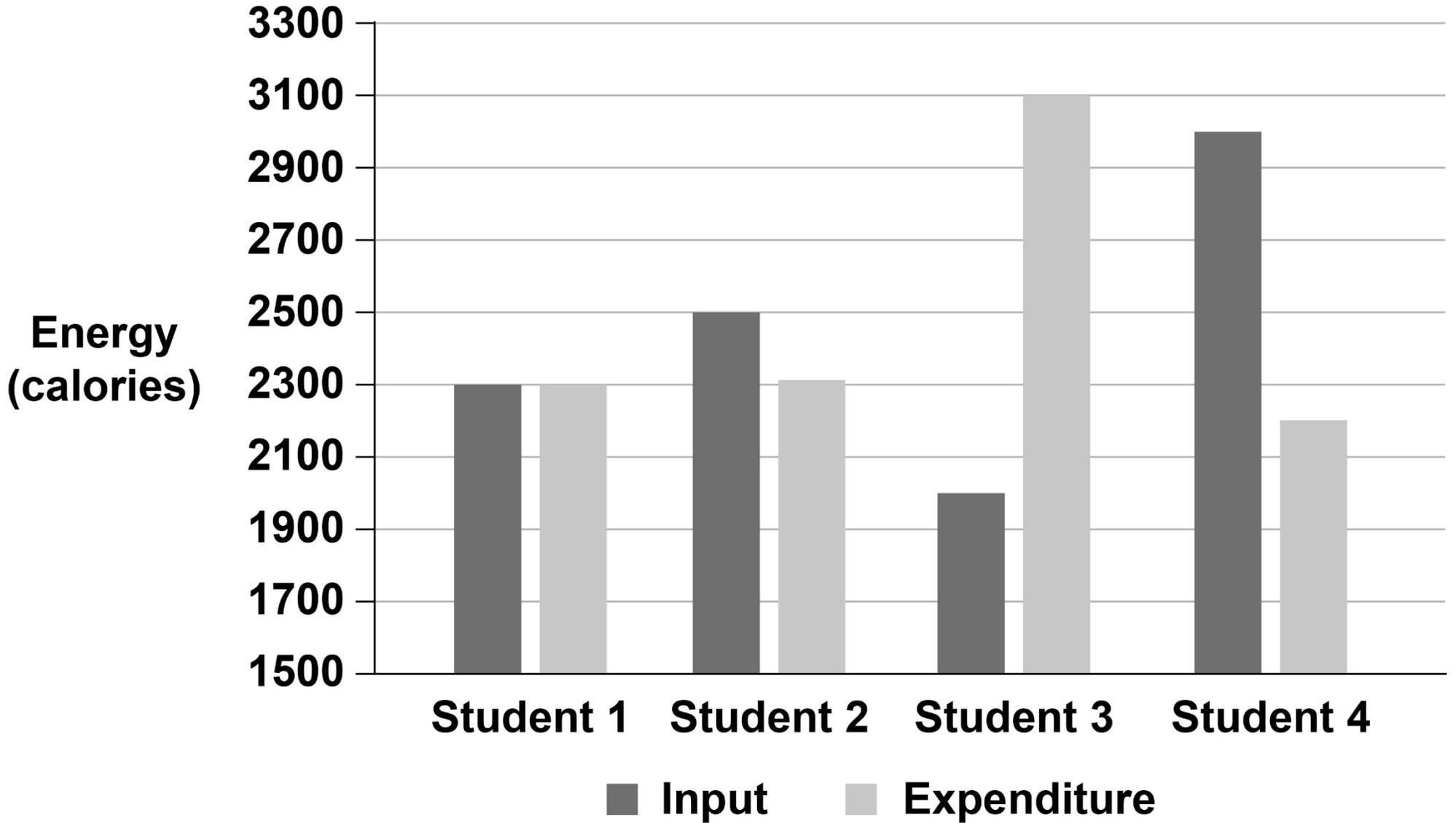
**12 Four students kept a record of the number of calories they ate (energy input) and the energy they used (energy expenditure).**

**FIGURE 5 on the next page shows the students energy input and energy expenditure.**

**(Continues on next page)**

**(Turn over)**

**FIGURE 5**



**(Turn over)**

**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 mark)**

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**(Question continues)**

**(Turn over)**

- (b) Analyse the data in Figure 5 to determine which student is most likely to maintain a healthy weight. (4 marks)**

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**(Continue answer on next page)**

**(Turn over)**



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

**FIGURE 6 shows three different phases of a tennis match.**

**FIGURE 6**



**During a serve**



**During a long intense rally**



**Resting between games**

**(Continues on next page)**

**(Turn over)**



















## Sources

**Q1, Figure 1:**

**(Source: © Sebastian Kaulitzki/Shutterstock)**

**Q2, Figure 2:**

**(Source: © Kjpargeter/Shutterstock)**

**Q3, Figure 3:**

**(Source: © icsnaps/Shutterstock)**

**Q5, Figure 4:**

**(Source: © Nicholas Piccillo/Shutterstock)**

**Q13, Figure 6:**

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