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)

Time 1 hour 45 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.
- Answer the questions in the spaces provided – *there may be more space than you need.*

Information

- The total mark for this paper is 90.
- 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

©2022 Pearson Education Ltd.

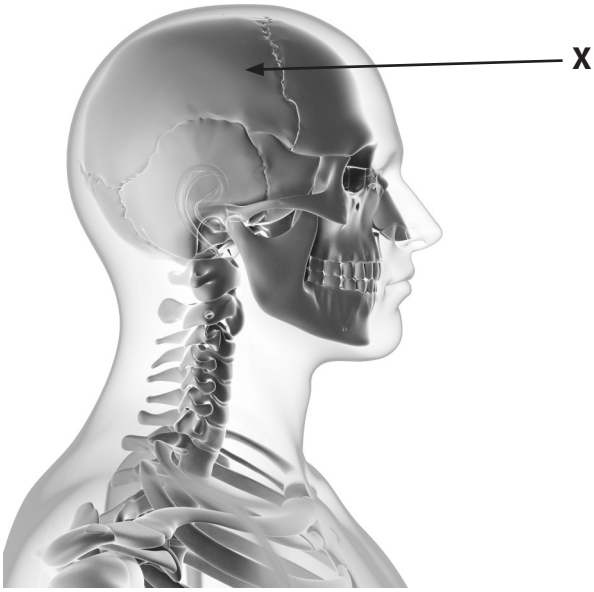
Pearson

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 **Figure 1** shows part of the structure of the skeletal system.



(Source: © PAL)

Figure 1

(a) Which **one** of the following is the name of the bone labelled **X** in **Figure 1**?

(1)

☒	**A** Carpal
☒	**B** Cervical
☒	**C** Clavicle
☒	**D** Cranium

(b) Which **one** of the following is the role of tendons?

(1)

☒	**A** Tendons join bone to bone
☒	**B** Tendons join ligaments to bone
☒	**C** Tendons join muscle to bone
☒	**D** Tendons join muscle to muscle

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(c) Which **one** of the following muscles contracts to bring about **extension** at the **hip**?

(1)

☒	**A** Biceps
☒	**B** Gluteus maximus
☒	**C** Latissimus dorsi
☒	**D** Quadriceps

(d) Which **one** of the following is a characteristic of **type IIx** muscle fibres?

(1)

☒	**A** They are very fatigue resistant
☒	**B** They have a large capillary network
☒	**C** They produce a large amount of force
☒	**D** They work aerobically

Table 1 shows ratings for the grip dynamometer test for teenagers aged 16 to 19.

Gender	Excellent	Good	Average	Fair
Male	>56	51–56	45–50	39–44
Female	>36	31–36	25–30	19–24

(Source: © Adapted from Davis et al Physical Education and the study of sport, 2000/ https://www.brianmac.co.uk/grip.htm)

Table 1

(e) Which **one** of the following is the correct rating for a female, who scored 32 in the grip dynamometer test?

(1)

☒	**A** Excellent
☒	**B** Good
☒	**C** Average
☒	**D** Fair

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Figure 2 shows an individual's resting blood pressure as blood travels through the different types of blood vessels in the body.

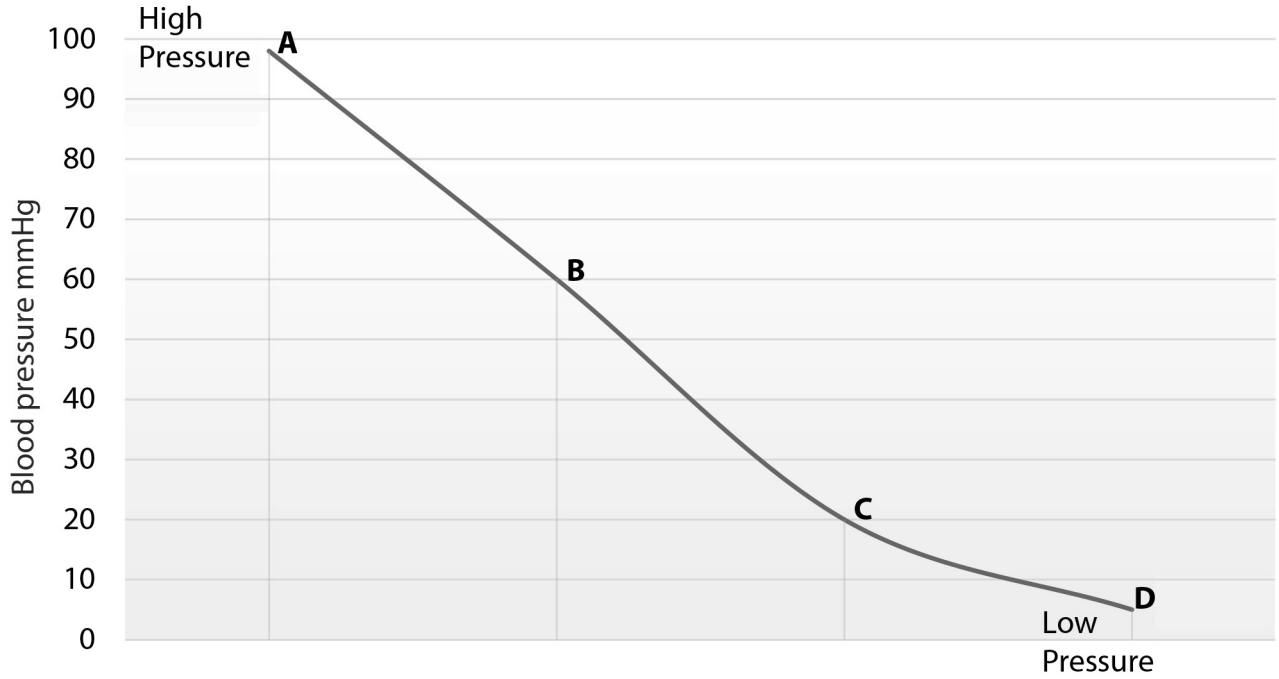


Figure 2

(f) Which **one** of the following, **A**, **B**, **C** or **D** represents the blood pressure as the blood leaves the heart?

(1)

☒	**A**
☒	**B**
☒	**C**
☒	**D**

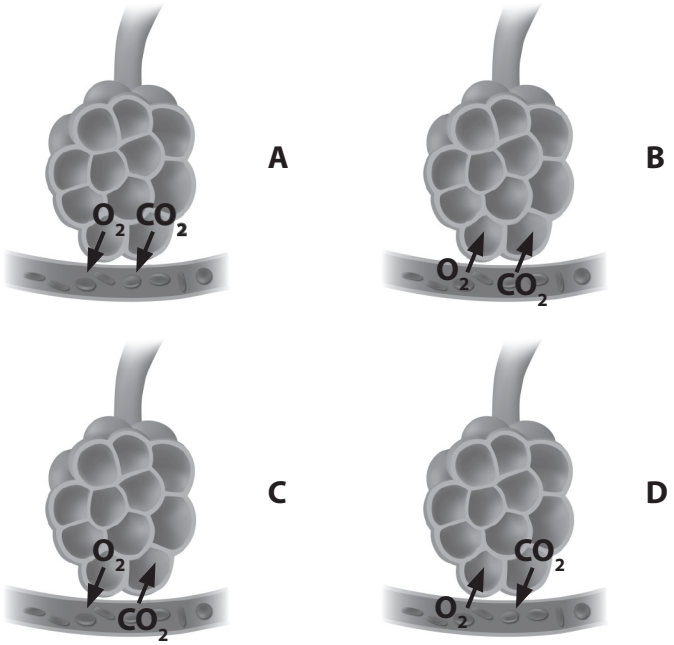
(g) Which **one** of the following terms means the amount of blood leaving the heart per minute?

(1)

☒	**A** Cardiac output
☒	**B** Stroke volume
☒	**C** Tidal volume
☒	**D** Vital capacity

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Figure 3 shows movement of gases into and out of the alveoli in the lungs.



(Source: © PAL)

Figure 3

(h) Which **one** of the following, **A**, **B**, **C** or **D** shows the correct movement of gases from the alveoli into the capillary during gaseous exchange?

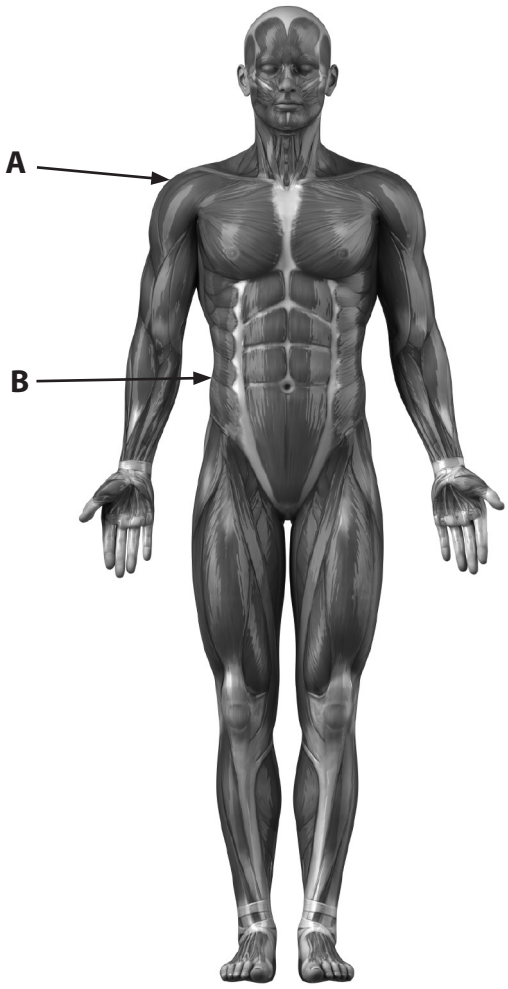
(1)

☒	**A**
☒	**B**
☒	**C**
☒	**D**

(Total for Question 1 = 8 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

2 **Figure 4** shows the muscular system.



(Source: © PAL)

Figure 4

Complete **Table 2** by:

(a) Stating the name of the labelled muscles.

(b) Stating the function of the labelled muscles.

Labelled muscle	(a) Name of the muscle	(b) Function of the muscle
A (pointing to the shoulder)	(1)	(1)
B (pointing to the side of the trunk)	(1)	(1)

Table 2

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(c) State **one** reason why skeletal muscles are classified as **voluntary** muscles.

(1)

.....

.....

.....

.....

(d) Explain, using an example, why **involuntary** muscles are important during sport and physical activity.

(3)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 2 = 8 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

3 Games players constantly change direction when playing their sport.

(a) (i) State the component of fitness games players use to quickly change direction.

(1)

.....

(ii) State the name of the fitness test that measures how quickly you can change direction.

(1)

.....

(b) Explain why the role of ligaments is important to games players.

(2)

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

One of the functions of the cardiovascular system is to help regulate body temperature.

(c) Explain why the cardiovascular system needs to regulate a games player's body temperature when they play sport.

(4)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(d) Games players work aerobically and anaerobically during a game.

(i) Give **one** example of a games player working **aerobically** in their sport.

(1)

.....

.....

.....

.....

(ii) Give **one** example of a games player working **anaerobically** in their sport.

(1)

.....

.....

.....

.....

(e) State **one** of the by-products of **aerobic** energy production.

(1)

.....

(Total for Question 3 = 11 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

BLANK PAGE

4 **Figure 5** shows a gymnast during their performance of a cartwheel.

(Source: © PAL)

Figure 5

(a) State the plane and axis used in **Figure 5** to perform this movement.

(2)

Plane

.....

Axis

.....

(b) State the antagonistic muscle pair acting at the elbow that allow the gymnast to extend the arm at the elbow during the cartwheel.

(2)

Agonist

.....

Antagonist

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(c) State the classification of the joint at the hip.

(1)

.....

(d) State the type of movement that has occurred at the gymnast's hip joints to achieve the position shown in **Figure 5**.

(1)

.....

(e) Explain the importance of the short bones in the gymnast's wrists during the movement shown in **Figure 5**.

(2)

.....

.....

.....

.....

.....

.....

(f) Describe the **range** of movement possible at condyloid joints.

(3)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 4 = 11 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

5 **Figure 6** shows a footballer kicking a football. His right knee and right ankle are circled.

Position A **Position B**

(Source: © OSTILL is Franck Camhi/Shutterstock)

Figure 6

Analyse the action of the antagonistic muscle pairs at the **circled** joints of the right **knee** and right **ankle** that causes the movement from **Position A** to **Position B** in **Figure 6**.

Knee

(3)

.....

.....

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

Ankle

(3)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 5 = 6 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

6 There are three types of health.

(a) State the type of health missing from this definition:

Health is a state of complete physical and social well-being, and not merely the absence of disease and infirmity.

(1)

.....

Health, fitness, exercise and performance affect each other because of the relationships between them.

(b) (i) State **one** relationship between exercise and performance.

(1)

.....

.....

.....

.....

.....

.....

(ii) State **one** relationship between any **two** of the following:

- Health
- Fitness
- Exercise

(1)

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

An individual's fitness can be improved through the application of the principles of training.

Figure 7 gives an outline of an individual's training programme.

- I train 4 times a week.
- Each of my training sessions are in a gym.
- I work at 60% of my maximum heart rate in my aerobic target zone.
- Each gym session lasts 60 minutes.

Figure 7

Complete **Table 3** by:

(c) Giving **one** example of how each of the principles of training could be applied to the training programme in **Figure 7**.

Use a **different** example for each principle.

Principle of training	Example
Time	**(1)**
Progressive overload	**(1)**

Table 3

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

Regular training causes long-term training effects.

(d) Explain the benefit of **one** long-term training effect on the **cardiovascular** system for a long-distance runner.

(3)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 6 = 8 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

BLANK PAGE

7 An athletics coach uses fitness test results to select the athletics team.

Table 4 shows the fitness test results for four athletes.

Fitness test	**Athlete 1**	**Athlete 2**	**Athlete 3**	**Athlete 4**
Vertical jump	Very good	Average	Poor	Very good
30m sprint	Very good	Average	Excellent	Good
Sit and reach	Very good	Good	Average	Average
Cooper 12-minute run	Poor	Excellent	Average	Poor

Table 4

(a) State which athlete in **Table 4** has the highest rating for speed.

(1)

.....

(b) Justify, using the ratings in **Table 4**, why the coach would select Athlete 1 for the 110m hurdling event.

(2)

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA DO NOT WRITE IN THIS AREA

The 3000m is a long-distance running event.

(c) Justify, using the ratings in **Table 4**, which athlete would **most likely** be chosen to run the 3000m.

(3)

.....

.....

.....

.....

.....

.....

.....

.....

(Total for Question 7 = 6 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

8 Explain why the diver in **Figure 8** could suffer a concussion.

(Source: © sirtravelalot/Shutterstock)

Figure 8

.....

.....

.....

.....

.....

(Total for Question 8 = 2 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

9 Some athletes take performance-enhancing drugs to improve their performance.

Complete **Table 5** by:

(a) Stating the name of the type of performance-enhancing drug from the description of its effect.

	Description of effect	Name of type of performance-enhancing drug
(i)	This drug allows the performer to train harder and for longer, helping them increase muscle strength and power.	**(1)**
(ii)	This drug leads to quick weight loss as urine is passed sooner, so may also be used to mask the presence of other drugs.	**(1)**

Table 5

(b) State the meaning of the term blood doping.

(1)

.....

.....

.....

.....

(c) Give **one** example of a sport or activity where blood doping may occur.

(1)

.....

(Total for Question 9 = 4 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

10 **Figure 9** shows performers participating in different physical activities.

10,000m runner

Shot putter

(Source: © Maxisport/Shutterstock)
(Source: © Denis Kuvaev/Shutterstock)

Figure 9

Table 6 shows the different fitness tests carried out by each performer.

Performer	Fitness test 1	Fitness test 2
10,000m runner	Sit and reach test	Harvard step test
Shot putter	Vertical jump test	Cooper 12-minute swim

Table 6

(a) State the component of fitness tested by **both** performers.

(1)

.....

The 10,000m runner carries out the sit and reach test.

(b) Describe how to carry out the sit and reach test.

(3)

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(c) Explain **one** reason why the shot putter in **Figure 9** would use the vertical jump test.

(2)

.....

.....

.....

.....

.....

.....

(d) Justify why the shot putter should change the Cooper 12-minute swim for another fitness test.

(2)

.....

.....

.....

.....

.....

.....

(Total for Question 10 = 8 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

11 Christina plays handball. Each match lasts 60 minutes. **Figure 10** shows a handball match.

Table 7 shows three short-term effects of playing handball on Christina's body systems.

(Source: © Dan POTOR/Shutterstock)

Figure 10

Short-term effects
Lactate accumulation
Increased depth of breathing
Increased heart rate

Table 7

Evaluate the importance of the **three short-term effects** listed in **Table 7** on Christina's handball **performance**.

(9)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(Total for Question 11 = 9 marks)

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

BLANK PAGE

12 Mason is a sprinter. **Figure 11** shows a sprinter waiting to start a race.
Sprinters require high levels of power, speed and reaction time to perform well in their event.

(Source: © sirtravelalot/Shutterstock)

Figure 11

Mason trains regularly, using interval training, plyometric training and continuous training.

Evaluate the importance of these **three** training methods in improving Mason's fitness to make him a better sprinter.

(9)

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA

(Total for Question 12 = 9 marks)

TOTAL FOR PAPER = 90 MARKS

DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA
DO NOT WRITE IN THIS AREA