Please check the examination details below before entering your candidate information

Candidate surname	Other names

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

Centre Number | | | | | |

Candidate Number | | | | |

Wednesday 13 May 2020

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

Physical Education (Short Course)

Component 1: Theory

You do not need any 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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P 6 2 0 3 6 A 0 1 2 8

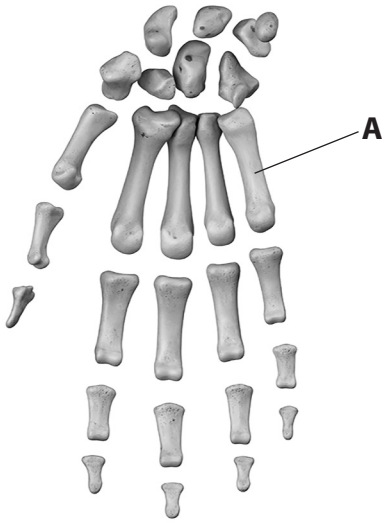
Pearson

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 the bones of the hand.



(Source: © Sebastian Kaulitzki/Shutterstock)

Figure 1

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

(1)

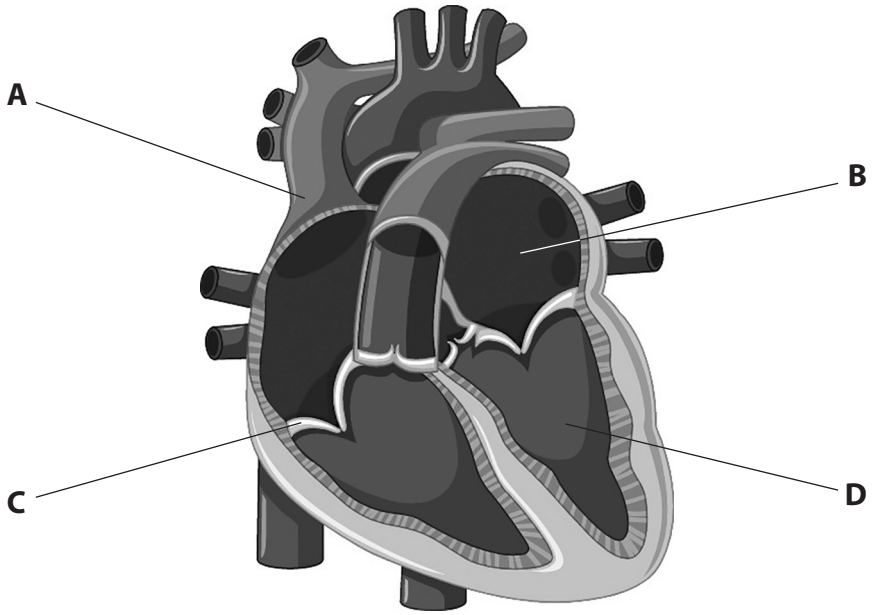
☒ **A** Carpal

☒ **B** Metacarpal

☒ **C** Phalange

☒ **D** Tarsal

Figure 2 is a diagram of the heart.



(Source: © GraphicsRF/Shutterstock)

Figure 2

(b) Which **one** of **A**, **B**, **C** or **D** in **Figure 2** is a ventricle?

(1)

☒ **A**

☒ **B**

☒ **C**

☒ **D**

Figure 3 shows a footballer about to kick the ball.

(Source: © Ostill/Shutterstock)

Figure 3

(c) Which **one** of the following lever systems is acting at the knee when kicking the ball?

(1)

☒ **A** First and second class lever system

☒ **B** First class lever system

☒ **C** Second class lever system

☒ **D** Third class lever system

Karar is training to improve his health.

He monitors his training by collecting data about his cardiorespiratory system.

Table 1 shows Karar's heart rate at rest, immediately before exercise, during exercise and during recovery after exercise.

	Heart rate (bpm)
A	65 bpm
B	72 bpm
C	95 bpm
D	180 bpm

Table 1

(d) Which heart rate value in **Table 1** is the **most** likely heart rate for Karar one minute after exercise during recovery?

(1)

☒ **A**

☒ **B**

☒ **C**

☒ **D**

Table 2 shows the percentage of different gases in the air as Karar breathes in and out.

Percentage of different gases
4%
17%
21%
78%

Table 2

(e) Which one of the following is the percentage of carbon dioxide Karar breathes out during exercise?

(1)

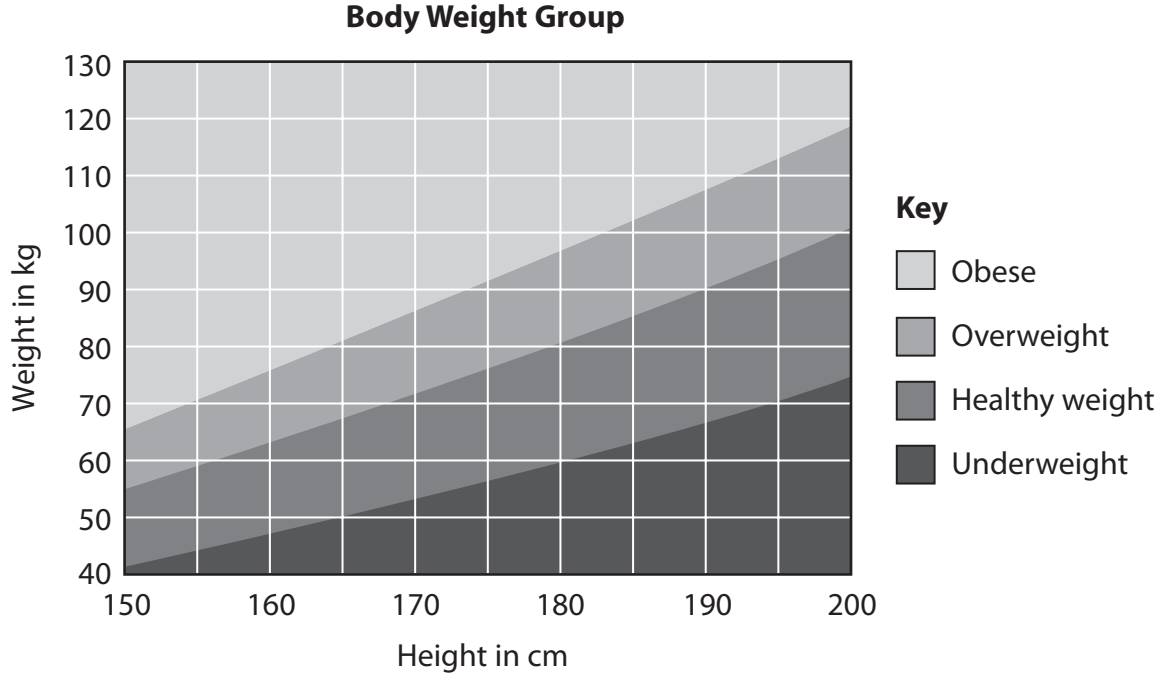
☒ **A** 4%

☒ **B** 17%

☒ **C** 21%

☒ **D** 78%

Figure 4 shows a chart used to decide whether people are underweight, healthy weight, overweight or obese based on their height and weight.



(Source: adapted from © Zerbor/Shutterstock)

Figure 4

Kate is 175 cm tall and weighs 65 kg.

(f) Using **Figure 4**, identify Kate's body weight group.

(1)

☒ **A** Healthy weight

☒ **B** Obese

☒ **C** Overweight

☒ **D** Underweight

(g) Which **one** of the following should be eaten in the greatest quantity to maintain a healthy lifestyle?

(1)

☒ **A** Carbohydrates

☒ **B** Minerals

☒ **C** Protein

☒ **D** Vitamins

(Total for Question 1 = 7 marks)

2 One of the functions of the skeleton is to protect vital organs.

Complete **Table 3** by:

(a) Stating the name of the bone that protects the vital organ.

(b) Stating the classification of the bone.

Vital organ	(a) Bone protecting the vital organ	(b) Classification of the bone
Brain	(1)	(1)
Spinal cord	(1)	(1)

Table 3

(c) Complete the following statements.

(i) The bones of the skeleton store phosphorus and ..... .

These minerals help maintain bone ..... .

(2)

(ii) The ..... are responsible for clotting the blood.

(1)

(iii) The skeleton produces ..... blood cells to help fight infection.

(1)

(Total for Question 2 = 8 marks)

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3 Bones form joints to allow different ranges of movement.

Complete **Table 4** by:

(a) Stating a range of movement possible at each type of joint.

(b) Stating an example of the type of joint in the body.

Type of joint	(a) Range of movement possible at each type of joint	(b) Example of type of joint in the body
Pivot	**(1)**	**(1)**
Hinge	**(1)**	**(1)**
Ball and socket	**(1)**	**(1)**

Table 4

The wrist is made up of short bones.

(Source: © Microgen/Shutterstock)

Figure 5

(c) Explain the importance of having short bones in the wrist for the diver in **Figure 5**.

(2)

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(Total for Question 3 = 8 marks)

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4 Voluntary muscles are a classification of a muscle type.

During exercise we use our voluntary muscles to allow us to move.

Complete **Table 5** by:

(a) Stating **two other** classifications of muscle types.

(b) Giving an example of the stated muscle type.

(c) Stating the role of the muscle type during exercise.

(a) Classification of muscle type	(b) Example of muscle type	(c) Role of the muscle type during exercise
(1)	**(1)**	**(1)**
(1)	**(1)**	**(1)**

Table 5

(Total for Question 4 = 6 marks)

5 We need energy to exercise.

(a) Complete **Table 6** by stating a different energy source for each type of exercise.

Type of exercise	Energy source for type of exercise
Anaerobic	**(1)**
Aerobic	**(1)**

Table 6

(b) Explain which type of exercise gives lactic acid as a by-product.

(2)

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(Total for Question 5 = 4 marks)

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6 **Figure 6** shows the take-off in the long jump.

(Source: © Marco Govel/Shutterstock)

Figure 6

(a) Explain why the lever system operating at the take-off foot in **Figure 6** is classified as a second class lever system.

(4)

(b) Explain why the second class lever system in **Figure 6** operates at a mechanical advantage.

(2)

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(Total for Question 6 = 6 marks)

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7 Movement in the body occurs in planes and around axes.

Complete **Table 7** by:

(a) Stating the plane and axis for the cartwheel.

(b) Stating the plane and axis for the piked somersault.

	Movement	Plane	Axis
(a)	 Cartwheel	(1)	(1)
(b)	 Piked somersault	(1)	(1)

(Source: © HD92/Shutterstock)
(Source: © Paolo Bona/Shutterstock)

Table 7

(Total for Question 7 = 4 marks)

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8 Mohamed is a high jumper.

During the high jump the gastrocnemius and the tibialis anterior work antagonistically to allow movement at the ankle during take-off.

(a) Explain the importance of this antagonistic muscle action to the high jumper.

(2)

(b) Analyse the antagonistic muscle action that allows Mohamed to straighten his leg at the knee during take-off.

(3)

(c) Explain **one** reason why Mohamed makes sure he maintains the correct energy balance for his sport.

(2)

(d) Explain **one** reason why protein is important to Mohamed's high jump performance.

(3)

(Total for Question 8 = 10 marks)

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9 Carolyn is preparing to run a marathon.

Table 8 shows data collected during one of her training sessions.

Mile	Time to complete mile (minutes : seconds)	Time difference
1	8 : 23	
2	9 : 09	+46 s
3	9 : 15	+6 s
4	9 : 20	+5 s
5	9 : 25	+5 s
6	9 : 30	+5 s
7	9 : 38	+8 s
8	9 : 46	+8 s
9	9 : 56	+10 s
10	10 : 08	+12 s
11	10 : 22	+14 s
12	10 : 38	+16 s

Table 8

Analyse the data in **Table 8** to:

(a) Predict the **most** likely trend for Carolyn's time for mile 13.

(1)

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Carolyn always takes water with her when running.

(b) Explain **one** reason why Carolyn takes water with her when she exercises.

(2)

(c) Explain **one** reason why Carolyn may use carbohydrate loading before running a marathon.

(3)

(Total for Question 9 = 6 marks)

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10 Miss Convoy is a PE teacher. She runs an after school fitness club where the students work in small groups.

(a) State **two different** physical health benefits of attending the after school fitness club.

(2)

Physical health benefit 1

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Physical health benefit 2

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(b) Explain how the after school fitness club could also provide a social health benefit.

(2)

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As part of the after school fitness club the students develop a Personal Exercise Programme (PEP).

(c) Explain **one** reason why it is important for the students to monitor their PEP.

(2)

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By joining and attending the after school fitness club the students have made a positive lifestyle choice about their activity level.

(d) State **two other** lifestyle choices the students could make to promote their health.

(2)

Lifestyle choice 1

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Lifestyle choice 2

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(Total for Question 10 = 8 marks)

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11 The sex of an individual is one factor affecting optimum weight.

(a) State **two other** factors affecting optimum weight.

(2)

Factor 1

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Factor 2

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(b) Explain why the optimum weight of males and females may vary.

(2)

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(Total for Question 11 = 4 marks)

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12 Dexter plays basketball.

A basketball game is played at different intensities. Dexter's body uses different muscle fibre types as the intensity of the play increases and decreases.

Figure 7 shows three different intensities of play in basketball.

Jumping to reach the ball at the start of the game

(Source: © Fabrizio Andrea Bertani /Shutterstock)

Jogging back to position

(Source: © Icon Sportswire/ Contributor/Getty Images)

Sprinting to the basket

(Source: © A_Lesik/Getty Images)

Figure 7

Evaluate the importance of **three** different muscle fibre types during the different intensities of play in **Figure 7**.

(9)

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(Total for Question 12 = 9 marks)

TOTAL FOR PAPER = 80 MARKS

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