Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

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

Wednesday 13 May 2020

Afternoon (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

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P 6 2 0 3 4 A 0 1 3 6

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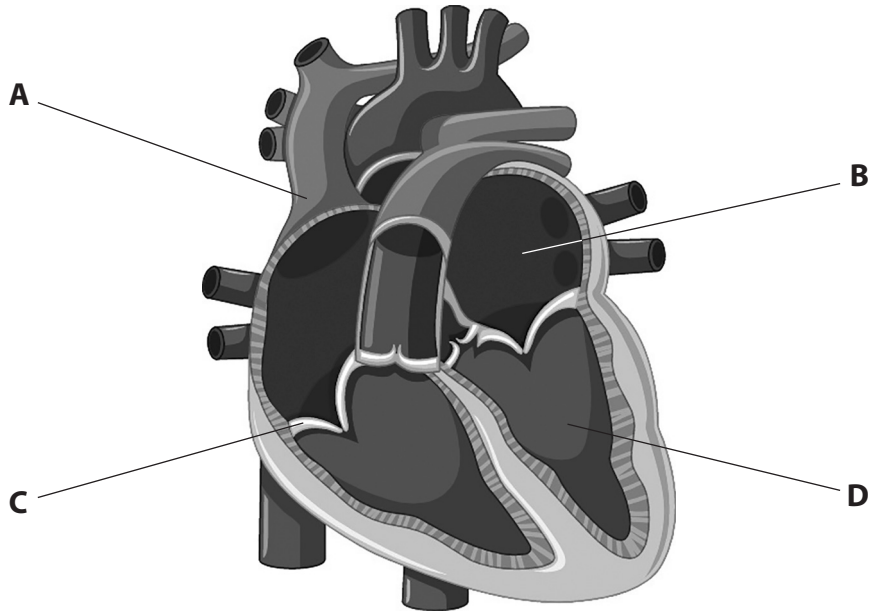
Answer ALL questions.

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** is a diagram of the heart.



(Source: © GraphicsRF/Shutterstock)

Figure 1

(a) Which **one** of **A**, **B**, **C** or **D** in **Figure 1** is a ventricle?

(1)

☒ **A**

☒ **B**

☒ **C**

☒ **D**

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Figure 2 shows a footballer about to kick the ball.

(Source: © Ostill/Shutterstock)

Figure 2

(b) 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

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Karar takes part in the Illinois agility run test and scores 15.1 seconds.

Table 1 shows ratings for the Illinois agility run test.

Gender	Excellent	Good	Average	Fair
Male	<15.2	15.2 – 16.1	16.2 – 18.1	18.2 – 19.1

Table 1

(c) Which **one** of the following is the correct rating for Karar, given his score of 15.1 seconds?

(1)

☒ **A** Average

☒ **B** Excellent

☒ **C** Fair

☒ **D** Good

(d) Which **one** of the following fitness tests measures strength?

(1)

☒ **A** 30 m sprint

☒ **B** Grip dynamometer

☒ **C** One-minute press-up

☒ **D** One-minute sit-up

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(e) Which **one** of the following principles of training allows the body to adapt and get fitter without risking injury?

(1)

☒ **A** Overtraining

☒ **B** Progressive overload

☒ **C** Reversibility

☒ **D** Specificity

(f) Which **one** of the following methods of training is being described?

'Work at a number of stations designed to develop skill or a component of fitness'

(1)

☒ **A** Circuit training

☒ **B** Interval training

☒ **C** Plyometric training

☒ **D** Weight training

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Table 2 shows four students' heart rate readings during exercise.

Each student is taking part in a different type of training.

(g) Which **one** of the students in **Table 2**, **A**, **B**, **C** or **D**, is **most** likely to be doing sprint interval training?

(1)

Student	Heart rate readings during exercise							
A	70	70	70	70	70	70	70	70
B	65	120	120	120	120	120	120	120
C	65	175	125	100	175	125	100	175
D	65	90	150	95	70	70	70	70

Table 2

☒ **A**

☒ **B**

☒ **C**

☒ **D**

(h) Which **one** of the following fitness classes requires the use of weights?

(1)

☒ **A** Body pump

☒ **B** Pilates

☒ **C** Spinning

☒ **D** Yoga

(Total for Question 1 = 8 marks)

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2 Complete the following statements.

(i) The bones of the skeleton protect the ..... .

For example, in a football match if two players clash heads when trying to head the ball, the ..... protects the ..... .

(3)

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

(1)

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

(1)

(Total for Question 2 = 5 marks)

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3 Bones form joints to allow different ranges of movement.

Complete **Table 3** 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 3

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The wrist is made up of short bones.

(Source: © Microgen/Shutterstock)

Figure 3

(c) Explain the importance of having short bones in the wrist for the diver in **Figure 3**.

(2)

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(Total for Question 3 = 8 marks)

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4 We need energy to exercise.

(a) Complete **Table 4** 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 4

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

(2)

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(Total for Question 4 = 4 marks)

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5 **Figure 4** shows the take-off in the long jump.

(Source: © Marco Govel/Shutterstock)

Figure 4

(a) Explain why the lever system operating at the take-off foot in **Figure 4** is classified as a second class lever system.

(4)

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(b) Explain why the second class lever system in **Figure 4** operates at a mechanical advantage.

(2)

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(Total for Question 5 = 6 marks)

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

Complete **Table 5** 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 5

(Total for Question 6 = 4 marks)

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7 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)

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Table 6 shows Mohamed's fitness test ratings.

Complete **Table 6** by:

(b) Stating the component of fitness tested by each test.

	Fitness test	Rating	Component of fitness tested
(i)	Sit and reach test	Excellent	**(1)**
(ii)	Cooper 12-minute swim	Average	**(1)**
(iii)	Vertical jump test	Average	**(1)**

Table 6

Analyse the data in **Table 6** to:

(c) Explain the **most** important component of fitness Mohamed should improve to increase his high jump performance.

(2)

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(d) Explain which **one** of the fitness tests in **Table 6** is the **least** relevant to Mohamed's high jump performance.

(3)

Mohamed plans a plyometric training programme.

(e) Describe plyometric training.

(3)

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(f) Justify **one** reason why weight training would **not** be suitable to improve Mohamed's high jump performance.

(2)

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(Total for Question 7 = 15 marks)

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8 Carolyn is preparing to run a marathon.

Table 7 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 7

Analyse the data in **Table 7** to:

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

(1)

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(b) Justify, using the data in **Table 7**, why Carolyn thinks she should work on her cardiovascular fitness.

(4)

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(c) Explain **one** training method that would be suitable for Carolyn to improve her cardiovascular fitness for marathon running.

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Regular training increases the number of alveoli in the lungs.

(d) (i) Explain **one** reason why an increase in the number of alveoli would improve Carolyn's marathon running performance.

(2)

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As well as increasing the number of alveoli in the lungs, regular training causes other adaptations to the respiratory system.

(ii) State **two other** long-term training adaptations to Carolyn's respiratory system.

(2)

Training adaptation 1

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Training adaptation 2

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(Total for Question 8 = 12 marks)

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9 Miss Convoy is a PE teacher. She runs an after school weight training class.

Figure 5 shows the weight training room.

(Source: © Jasminko Ibrakovic/Shutterstock)

Figure 5

Before the first weight training class everyone completes a PARQ.

(a) State **one** reason why everyone is asked to fill in a PARQ.

(1)

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The weight training class starts with a warm-up and ends with a cool down.

(b) (i) Explain why Miss Convoy makes sure that the class stretches as part of the warm-up.

(2)

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(ii) State **one** purpose of a cool down.

(1)

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(c) State **two** safety checks Miss Convoy should carry out each time before teaching the weight training class.

(2)

Safety check 1

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Safety check 2

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(Total for Question 9 = 6 marks)

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10 Some athletes risk being banned from their sport by taking performance-enhancing drugs (PEDs).

Complete **Table 8** by:

(a) Stating a sport or physical activity where the effects of the PED would be an advantage.

(b) Stating an advantage of the PED to a performer in that sport or physical activity.

Performance-enhancing drug (PED)	(a) Sport or physical activity where effect of PED would be an advantage	(b) Advantage to performer in that sport or physical activity
Erythropoietin (EPO)	(1)	(1)
Anabolic steroids	(1)	(1)

Table 8

(Total for Question 10 = 4 marks)

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11 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 6 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 6

Evaluate the importance of **three** different muscle fibre types during the different intensities of play in **Figure 6**.

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(Total for Question 11 = 9 marks)

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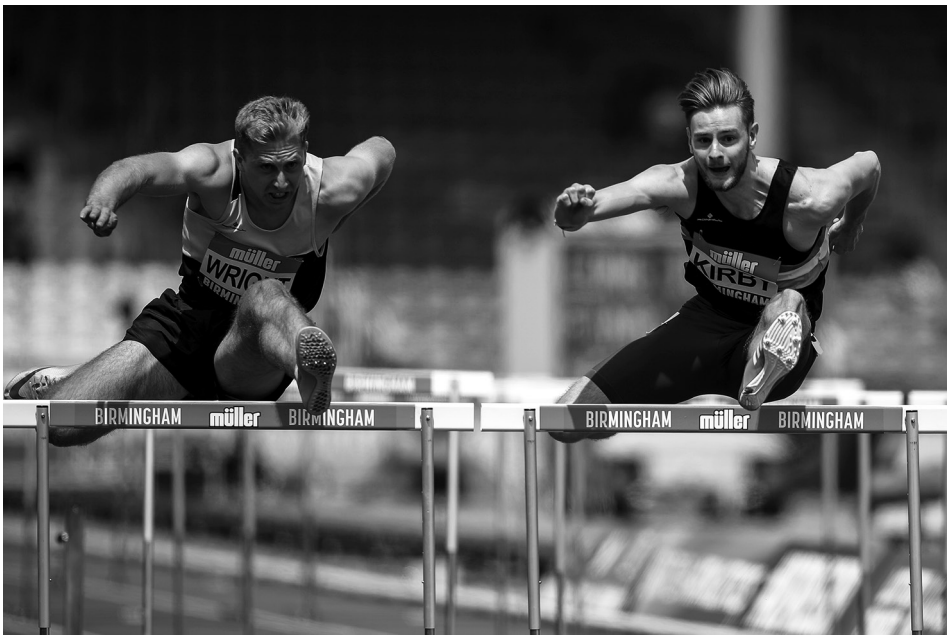
12 Jack competes in the 110 m sprint hurdles. He has to run as fast as possible, jumping hurdles as he runs.

Figure 7 shows a 110 m sprint hurdles race.



(Source: © Steve Feeney/Contributor)

Figure 7

Jack has high levels of power, strength and flexibility.

Evaluate **three other** components of fitness that will help Jack's sprint hurdling performance.

(9)

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(Total for Question 12 = 9 marks)

TOTAL FOR PAPER = 90 MARKS

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