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Other names

Pearson Edexcel
Level 3 GCE

Centre Number

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Candidate Number

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Physical Education

Advanced Subsidiary

Component 1: Scientific Principles of Physical Education

Friday 18 May 2018 – Morning

Time: 1 hour 45 minutes

Paper Reference

8PE0/01

You must have:
Calculator

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 in sections A and B.
- 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.*
- Questions marked with an **asterisk** (*) require students to use their knowledge and understanding from across the course of study in their answer.
- Calculators can be used.

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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Pearson

SECTION A – Applied anatomy and physiology

Answer ALL questions. Write your answers in the spaces provided.



Figure 1

A footballer taking a penalty kick

1 (a) State Newton's law of inertia (first law of motion).

(1)

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(b) Using Newton's law of inertia, identify how the footballer moves the ball towards the goal.

(1)

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(c) Describe the muscular actions at the right knee joint during the preparation phase of taking a penalty.

(3)

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(Total for Question 1 = 5 marks)

2 (a) Calculate the force a basketball player weighing 68 kg applies to the ground while standing.

(2)

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(b) Using Newton's law of action and reaction (third law), describe how the basketball player uses this force to perform a jump shot.

(2)

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(Total for Question 2 = 4 marks)



3 Define the following terms:

(a) synergist

(1)

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(b) fixator.

(1)

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(Total for Question 3 = 2 marks)

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5 Summarise how the sinoatrial (SA) node causes the cardiac muscle to contract.

(5)

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(Total for Question 5 = 5 marks)

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QUESTION 6 BEGINS ON THE NEXT PAGE.



6 Summarise the flow of blood within the heart during a cardiac cycle.

(6)

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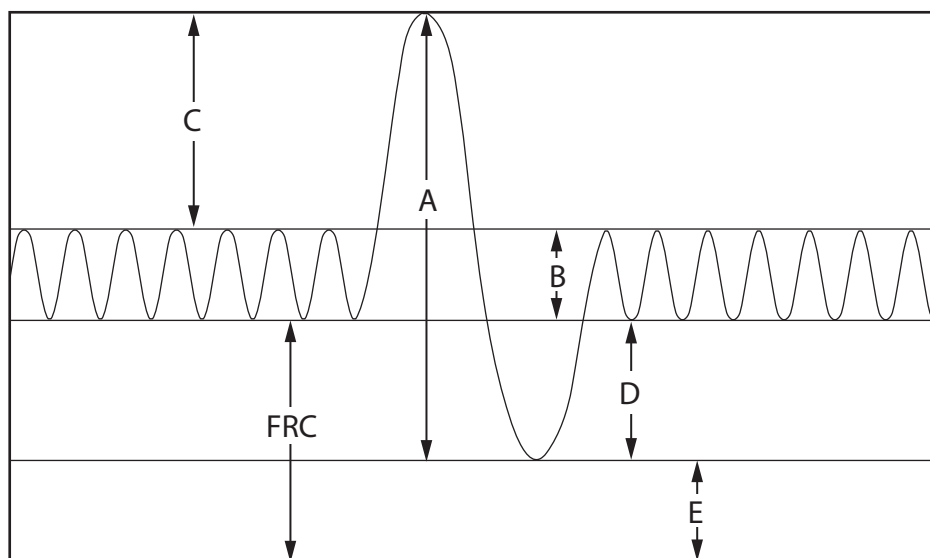
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(Total for Question 6 = 6 marks)



P 5 2 4 6 0 R R A 0 9 2 8

7 (a) Name the respiratory volumes labelled A to E in Figure 2.



(Source: Modified from Lung Volume By Vihsadas at en.wikipedia (Transferred from en.wikipedia) [Public domain], from Wikimedia Commons)

Figure 2

- (i) A (1)
-
- (ii) B (1)
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- (iii) C (1)
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- (iv) D (1)
-
- (v) E (1)
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(b) Define the terms:

(i) functional residual capacity

(1)

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(ii) total lung capacity.

(1)

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(Total for Question 7 = 7 marks)



P 5 2 4 6 0 R R A 0 1 1 2 8

8 Discuss the effect of the physiological adaptations that occur in muscle cells as a result of long-term anaerobic training.

(12)

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(Total for Question 8 = 12 marks)

TOTAL FOR SECTION A = 45 MARKS



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- 10 A 17-year-old female sprinter completed a series of fitness tests. The results are shown in the table below.

Name of test	Score	Rating
Multi-stage fitness test	L7 s3	Average
Standing long jump	1.67	Average
Illinois agility test	17.2	Above average
30 m acceleration sprint	4.6	Above average

- (a) Using the results from the table above, identify **one** fitness test score that she should aim to improve.

(1)

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- (b) Summarise the impact an improvement in this fitness test would have on her performance.

(2)

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11 Explain how an athlete can apply the FITT principle to produce progressive overload.

(4)

Area with horizontal dotted lines for writing the answer to Question 11.

(Total for Question 11 = 4 marks)

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(Total for Question 12 = 12 marks)



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***13** Discuss strategies an athlete could use six months prior to a major competition to optimise performance.

(12)

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(Total for Question 13 = 12 marks)

TOTAL FOR SECTION B = 45 MARKS
TOTAL FOR PAPER = 90 MARKS



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