Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel Level 3 GCE

Centre Number | Candidate Number

Friday 15 May 2020

Morning (Time: 1 hour 45 minutes) | Paper Reference **8PE0/01**

Physical Education

Advanced Subsidiary

Component 1: Scientific Principles of Physical Education

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 labelled with an **asterisk** (*) require candidates 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.

1 List **three** types of movement possible at the shoulder joint.

(3)

1 .....

2 .....

3 .....

(Total for Question 1 = 3 marks)

2 Using an example, describe how a muscle can perform different roles as part of an antagonistic pair.

(2)

.....

.....

.....

.....

(Total for Question 2 = 2 marks)

3 (a) Name a track event that would mainly use fast oxidative glycolytic (IIa) muscle fibres.

(1)

.....

(b) Summarise why this muscle fibre type is best suited to this activity.

(3)

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(Total for Question 3 = 4 marks)

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4 Explain, using examples, the impact of an unhealthy lifestyle on the cardiorespiratory system.

(6)

(Total for Question 4 = 6 marks)

5 Outline the mechanical process of inspiration.

(4)

(Total for Question 5 = 4 marks)

6 Explain the changes in respiratory volumes during exercise as shown in Figure 1 below.

(4)

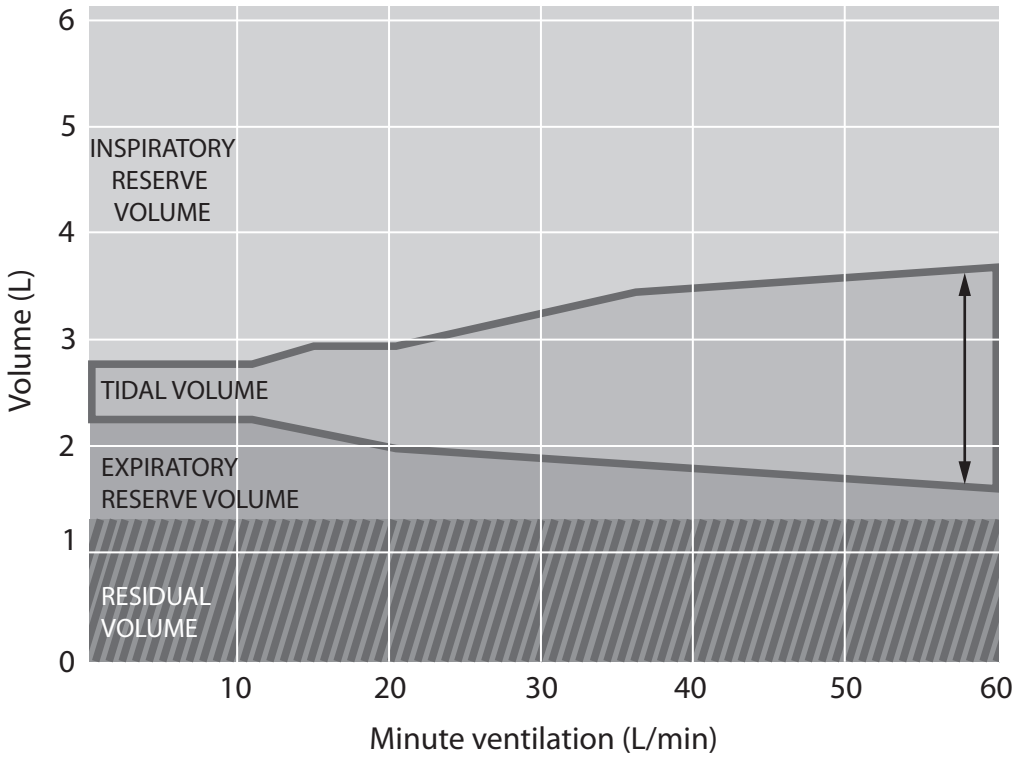


Figure 1

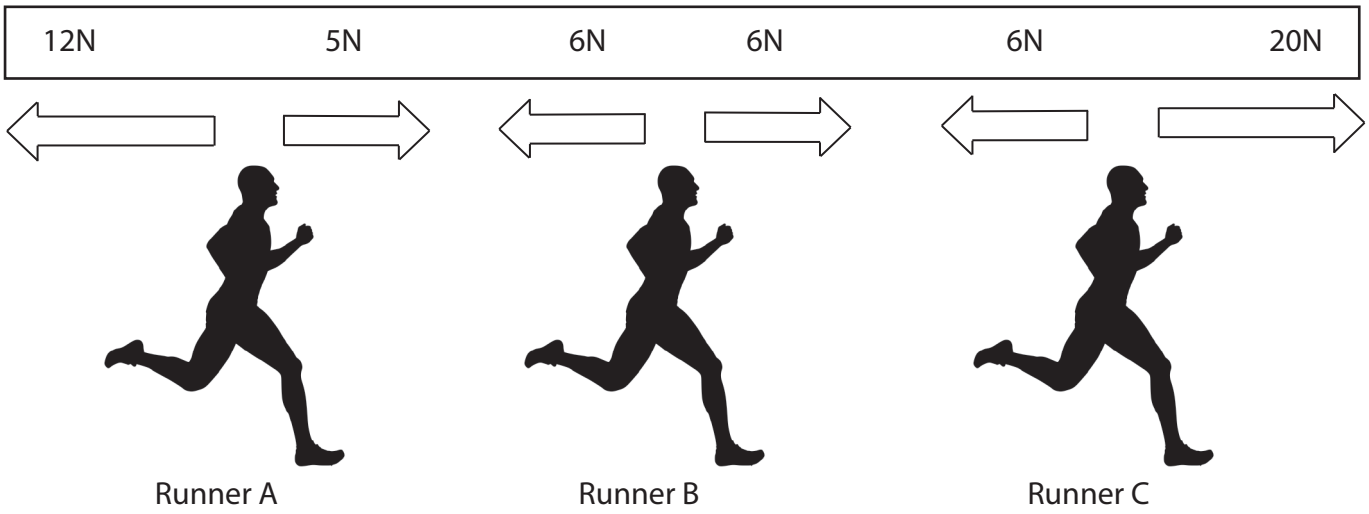
(Total for Question 6 = 4 marks)

7 Summarise how the recruitment pattern of motor units enables both power and endurance athletes to meet the demands of their events.

(4)

(Total for Question 7 = 4 marks)

8 Figure 2 below shows the forces acting on runners A, B and C.



(Source: © Michal Sanca/Shutterstock)

Figure 2

(a) Calculate the resultant force acting on each runner.

(i) Runner A

(1)

.....

(ii) Runner B

(1)

.....

(iii) Runner C

(1)

.....

(b) Describe the effect of the resultant force on each of the **three** runners' speed/velocity.

(3)

Runner A

.....

.....

.....

Runner B

.....

.....

.....

Runner C

.....

.....

.....

(Total for Question 8 = 6 marks)

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9 Analyse how the cardiovascular system responds during physical activity to allow athletes to perform at their optimum level.

(12)

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(Total for Question 9 = 12 marks)

TOTAL FOR SECTION A = 45 MARKS

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SECTION B – Exercise physiology and applied movement analysis

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

10 Table 1 outlines typical work:rest ratios when training.

Approximate % of maximum power	Typical exercise duration	Work: Rest Ratio
90–100	5–10 seconds	1:12 to 1:20
75–90	15–30 seconds	1:3 to 1:5
30–75	1–3 minutes	1:2 to 1:4
20–35	>3 minutes	1:1 to 1:3

(Source: adapted by Leyland, T (2007). *Rest and Recovery in Interval-Based Exercise*. [online] Available at: http://library.crossfit.com/free/pdf/56_07_Rest_Recovery.pdf)

Table 1

(a) Calculate the minimum and maximum rest duration for an athlete training at 95% of maximum power for 7 seconds.

(2)

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.....

(b) Calculate the minimum and maximum duration of the work intervals for an athlete training at 80% of maximum power with a 2 minutes 30 seconds rest interval.

(2)

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(Total for Question 10 = 4 marks)

11 The Wingate test is used to assess anaerobic capacity.

Describe the advantages and disadvantages of administering this test.

(4)

(Total for Question 11 = 4 marks)

12 Consider the potential benefits of carbohydrate loading before taking part in a marathon.

(4)

(Total for Question 12 = 4 marks)

13 Explain the role of the preparation phase in an athlete's training programme.

(4)

(Total for Question 13 = 4 marks)

14 Summarise the appropriateness of fartlek training for a games player and an endurance-based athlete.

(6)

(Total for Question 14 = 6 marks)

15 Table 2 shows the results for several fitness tests carried out on three athletes during a talent identification event.

Name of test/result	Athlete A	Athlete B	Athlete C
Illinois agility run	Excellent	Below average	Above average
Multi-stage fitness test	Excellent	Excellent	Above average
30 m sprint	Excellent	Below average	Above average
1 rep max bench press	Above average	Below average	Excellent

Table 2

(a) Identify which athlete is most likely to compete as a:

(i) Marathon runner

(1)

.....

(ii) Middleweight boxer

(1)

.....

(iii) Football midfielder

(1)

.....

(b) Justify your answers to part (a).

(8)

(Total for Question 15 = 11 marks)

***16** A sprinter has just successfully competed in preliminary rounds and a semi-final.

Discuss strategies the athlete may use after the semi-final to ensure optimum performance in the final in two days' time.

Use your knowledge and understanding from across the course of study to answer this question.

(12)

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(Total for Question 16 = 12 marks)

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

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(**Figure 1** sourced from: http://ptexphys.utorontoeit.com/respiratory-physiology/regulation-of-ventilation-during-exercise/)