

Centre No.					
Candidate No.					

Paper Reference (complete below)					
				/	

Surname	Initial(s)
Signature	

Paper Reference(s)

**1827/01**

**Edexcel GCSE  
Physical Education  
Paper 1**

Monday 19 May 2003 – Morning

Time: 1 hour 45 minutes

Examiner's use only

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Team Leader's use only

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**Materials required for examination**

Nil

**Items included with question papers**

Nil

Question Number	Leave Blank
1	
2	
3	
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6	
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17	
18	
19	
20	
Total	

**Instructions to Candidates**

In the boxes above, write your centre number, candidate number, your surname and initial(s), the paper reference and your signature. The paper reference is shown above. Answer **ALL** questions in the spaces provided in this book.

**Information for Candidates**

The total mark for this paper is 150. The marks for the various questions are shown in round brackets: e.g. (2).

There are 24 pages in this question paper. Calculators may be used.

**Advice to Candidates**

You are reminded of the importance of clear and orderly presentation in your answers.

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**PART ONE**

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blank*

**Answer all questions**

Questions 1 to 10 should be answered by writing **A, B, C** or **D** in the spaces provided.

1. Which of the following statements best describes a **mental** benefit of exercise?

- A Meeting new people
- B Losing weight
- C Relieving stress
- D Gaining aesthetic appreciation

**Q1**

.....  
**(Total 1 mark)**

2. Why is it important for an **individual** to have an active lifestyle?

- A Improves health
- B Helps the government develop National sporting heroes
- C Reduces the number of days people have away from work
- D Reduces the amount of street crime

**Q2**

.....  
**(Total 1 mark)**

3. Fitness is:

- A a capability of the heart, blood vessels, lungs and muscles to function at optimal efficiency
- B the ability to meet the demands of the environment
- C training regularly
- D a state of complete mental, physical and social well-being, and not merely the absence of disease and infirmity

**Q3**

.....  
**(Total 1 mark)**

<p>4. Which of the following statements is essential in the planning of an overload training session?</p> <p>A Making the body work harder to improve it  B Making the body work too hard resulting in injury  C Reducing the amount of work in order to avoid injury  D Resting the body after a particularly vigorous training session</p> <p style="text-align: right;">.....  <b>(Total 1 mark)</b></p>	<p><i>Leave blank</i></p> <p><b>Q4</b></p> <div style="border: 1px solid black; width: 40px; height: 20px; margin-left: auto;"></div>
<p>5. Which of the following terms describes the <b>ideal</b> body type for an elite 5000m runner?</p> <p>A Somatotype  B Ectomorph  C Obese  D Endomorph</p> <p style="text-align: right;">.....  <b>(Total 1 mark)</b></p>	<p><b>Q5</b></p> <div style="border: 1px solid black; width: 40px; height: 20px; margin-left: auto;"></div>
<p>6. Which of the following statements is an example of <b>balanced competition</b>?</p> <p>A A timed event to see which athlete can balance for the longest  B A gymnastic competition  C A competition where opponents play people of the same age  D A competition involving static and dynamic balance</p> <p style="text-align: right;">.....  <b>(Total 1 mark)</b></p>	<p><b>Q6</b></p> <div style="border: 1px solid black; width: 40px; height: 20px; margin-left: auto;"></div>
<p>7. Which of the following statements is <b>correct</b> for <b>all</b> arteries?</p> <p>A Take blood away from the heart  B Take blood towards the heart  C Carry oxygenated blood  D Carry deoxygenated blood</p> <p style="text-align: right;">.....  <b>(Total 1 mark)</b></p>	<p><b>Q7</b></p> <div style="border: 1px solid black; width: 40px; height: 20px; margin-left: auto;"></div>

8. Which of the following lead into the alveoli in the lungs?

*Leave  
blank*

- A Pleural membrane
- B Bronchi
- C Septum
- D Bronchiole

**Q8**

.....  
**(Total 1 mark)**

9. Which of the following statements best describes a function of ligaments?

- A Provides movement for the joint
- B Provides joint stability
- C Provides a point of muscle attachment to bones
- D Provides protection for the surface of the bones

**Q9**

.....  
**(Total 1 mark)**

10. Which of the following terms is the correct muscle type for the biceps?

- A Voluntary
- B Fast twitch
- C Slow twitch
- D Involuntary

**Q10**

.....  
**(Total 1 mark)**

**TOTAL FOR PART ONE: 10 MARKS**

**PART TWO**

*Leave blank*

**Answer all questions**

**11.** Patrick is an extremely talented cricketer. He plays cricket for his school and is also considering joining a club that plays in the local league. Patrick believes that by playing sport he will improve his health.

(a) Give a definition of **health**.

.....  
.....

**(1)**

(b) State how Patrick could improve **each aspect** of health through playing sport.

1. ....
2. ....
3. ....

**(3)**

(c) State **two** other reasons why he might join a club.

1. ....
2. ....

**(2)**

(d) Sporting activity requires **skill related fitness**. For a sporting activity of your choice, complete the table below. State **four** components of **skill related fitness** and explain why each is important to your activity.

**ACTIVITY:** .....

	<b>Components of skill related fitness</b>	<b>Why it is important to your activity?</b>
<b>1.</b>		
<b>2.</b>		
<b>3.</b>		
<b>4.</b>		

**(8)**

**Q11**

**(Total 14 marks)**

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12. Sports performers train in order to improve their **performance**.

Leave blank

(a) (i) Define the term **performance**.

.....  
.....

(1)

(ii) Using an activity of your choice state **two** aspects of **health related fitness** (other than flexibility) that may be improved by training. Explain how this would improve performance in your activity.

**ACTIVITY:** .....

**The example given relates to Badminton.**

Health related fitness component	How performance is improved
Improved flexibility	Able to stretch further and reach more shots

(4)

(b) (i) Explain the training principle of **progression**.

.....  
.....

(1)

(ii) Explain the relationship between the principles of **progression** and **overload**.

.....  
.....  
.....  
.....

(1)

(c) Give **an example** of how you could use overload and progression in your Personal Exercise Programme (**PEP**).

*Leave blank*



**Overload:** .....

.....

**Progression:** .....

.....

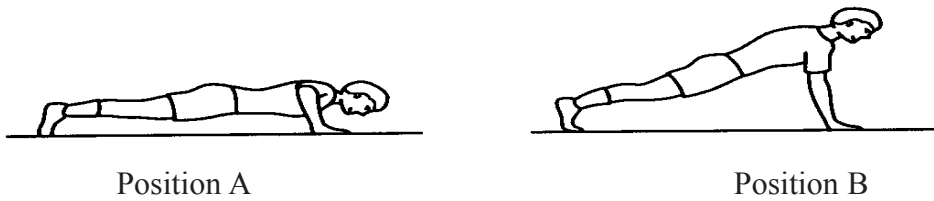
(2)

Q12

(Total 9 marks)

13. Figure 1 shows a performer completing a press up, as part of his Circuit Training programme. Position A shows the performer lowering his body to the ground. Position B shows the performer supporting his body weight in a **stationary** position.

*Leave blank*



**Figure 1**

- (a) What type of muscle contraction is taking place in the arms as the performer:
- lowers his weight to Position A: .....
- .....
- supports his weight in Position B: .....
- .....
- (2)**
- (b) What **two** components of fitness might this performer be trying to develop through this exercise?
1. ....
2. ....
- (2)**
- (c) State **three** other exercises that the performer could add to their circuit if they were trying to develop their **general fitness**.
1. ....
2. ....
3. ....
- (3)**
- (d) Why is it important to consider the order of the exercises when planning a circuit?
- .....
- .....
- (1)**





(e) State **one** way you could measure the amount of physical work completed by a performer during a circuit.

.....  
.....  
(1)

(f) If the circuit was 'too easy' for the performer, state **one** way you could make it harder for them without increasing the number of workstations.

.....  
.....  
(1)

(g) Circuit training is an effective training method for a variety of sports performers. Name a sport or activity, where the performer would benefit from circuit training and explain why.

**Sport/Activity:** .....

**Explanation:** .....

.....  
.....  
(2)

Leave blank



Q13

(Total 12 marks)

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14. (a) One way of attempting to prevent injury is to 'play by the rules'. Complete the table below by giving **two** examples from a sporting activity of your choice to show how 'rules' may prevent injury.

Leave blank



**ACTIVITY:** .....

Description of rule	How rule reduces chance of injury

(2)

- (b) (i) Different activities create different levels of risk for the performers. Which of the following activities presents the greatest risk?



**Basketball – Weight Training – 1500m – Rock Climbing**

..... (1)

- (ii) Explain your answer.

.....  
 ..... (1)

- (c) Complete the table below by giving a potential risk and precaution that could be taken to reduce that risk. Each risk and precaution may only be used once.



Activity	Potential risk	Measure to reduce risk
Basketball		
Weight Training		
1500m		
Rock Climbing		

(8)

Q14

(Total 12 marks)

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15. The cardiovascular and respiratory systems make up the cardio-respiratory system.

Leave blank

(a) What are the **three** components of the cardiovascular system?

..... (1)

(b) What are the **two** components of the respiratory system?

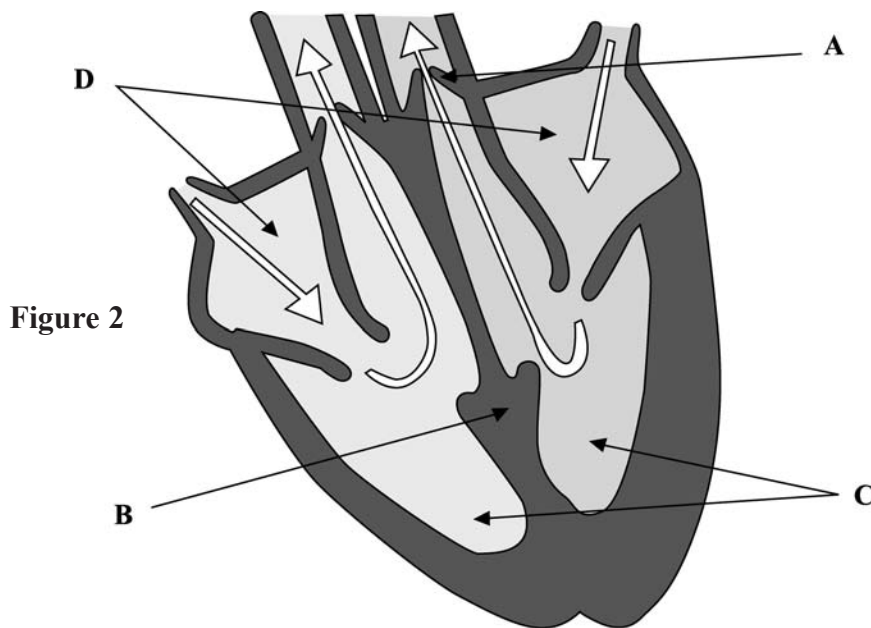
..... (1)

(c) State **one** reason why it is important for a performer to improve their cardiovascular systems.

..... (1)

(d) Complete the table below by stating the **anatomical** names of the labelled parts in Figure 2 and explain their function.

Figure 2 is a diagram of the heart.



Label	Anatomical Name	Function
A		
B		
C		
D		

(8)

Leave  
blank



(e) (i) What happens to an individual's **heart rate** when they start exercising?

.....  
.....  
(1)

(ii) Why is this an advantage to the performer?

.....  
.....  
(1)

(f) (i) Define **cardiac output** and state how it is affected when an individual starts to exercise.

**Cardiac output:** .....

**Effect of exercise on cardiac output:** .....

.....  
(2)

(ii) How does the heart achieve this change in cardiac output?

.....  
.....  
(1)

Q15

(Total 16 marks)

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16. Air contains Oxygen, Carbon Dioxide and Nitrogen.

Leave  
blank



(a) What is the percentage of oxygen in inspired air?

..... (1)

(b) How do the ribs and diaphragm move to aid inspiration?

Ribs: .....

Diaphragm: ..... (2)

(c) What is the percentage of oxygen in expired air?

..... (1)

(d) Why is there a difference between the amount of oxygen inspired and expired?

.....  
..... (1)

(e) What happens to the levels of carbon dioxide and nitrogen in expired air?

**Carbon Dioxide levels:** .....

**Explanation:** .....  
..... (2)

**Nitrogen levels:** .....

**Explanation:** .....  
..... (2)

Q16

(Total 9 marks)

--

17. The skeleton provides support and gives us our shape.

Leave  
blank

(a) State **two other** functions of the skeleton and relate them to sporting examples.

**Function 1:** .....

**Relevance to sport:** .....

**Example from sport:** .....

.....

**Function 2:** .....

**Relevance to sport:** .....

**Example from sport:** .....

.....

(6)

(b) Bones develop through a process called ossification. In which part of the bone does growth take place?

.....

.....

(1)

(c) How might the length of a performer's limbs affect the sport they choose to play?

.....

.....

(1)

Q17

(Total 8 marks)

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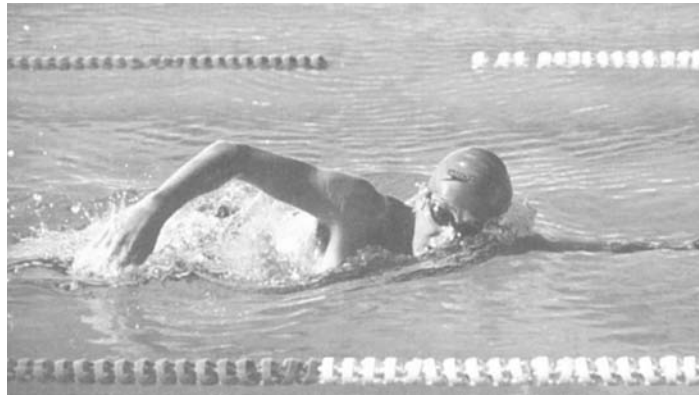
**TOTAL FOR PART TWO: 80 MARKS**

**PART THREE**

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**Answer all questions**

18. Figure 3 is a photograph of a swimmer.



**Figure 3**

(a) Using **some** of the words from the box below complete the following paragraph:

pivot	ball and socket	radius
adduction	trapezius	rotation
extension	bicep	hinge
scapula	thoracic vertebrae	agonistic
femur	atlas and axis	antagonistic
tricep	ulna	humerus
flexion		clavicle

In the photograph the swimmer's arm is bent at the elbow.

The elbow is a ..... joint.

The bones that form this joint are the ..... , ..... and .....

The type of movement possible at the elbow joint is .....

and ..... and the muscles which allow the arm to bend and straighten in this way are the ..... and .....

The term used to describe the relationship between the muscles of the upper arm which allows it to bend and straighten is known as .....

In the picture the swimmer is seen turning his head to the side to allow him to breathe.

This movement takes place at the ..... and ..... which is a ..... joint.

**(10)**



(b) As the swimmer turns his head to the side he takes in oxygen. What is the term used to describe activities which use oxygen?

.....  
(1)

(c) (i) If the muscles are working at a slow, constant pace for a long period of time, what muscle fibre type will be mainly in use?

.....  
(1)

(ii) State **two** food groups that could provide energy for a performer when working at this intensity.

Food Group 1: .....

Food Group 2: .....

(2)

(d) During a race over a short distance a swimmer will increase the intensity at which they are working.

(i) What harmful bi-product is produced when the body works at maximum intensity?

.....  
(1)

(ii) Why is this bi-product produced?

.....  
(1)





(e) (i) Diving in swimming is restricted to areas of deep water to avoid head injury. What type of head injury could a swimmer sustain through diving into shallow water?

*Leave blank*



.....  
.....  
(1)

(ii) Give **two** signs or symptoms of this injury.

1. ....  
.....  
2. ....  
.....  
(2)

(f) What common foot ailment is associated with swimming pools?



.....  
(1)

**Q18**

**(Total 20 marks)**

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19. Figure 4 shows an elite sprinter preparing to start a race. In order to reach this level he has worked on many factors which affect his performance.

*Leave blank*



**Figure 4**

(a) Sprinters use power to get a good start. How do they use their power at the start of a race?



.....  
.....  
(1)

(b) Explain the term **power**.



.....  
.....  
(2)

(c) Which leg muscles are responsible for generating most of the required power at the start of the race?



1. ....  
2. ....  
(2)



(d) (i) State **two** appropriate training methods for a sprinter.

Method 1: .....

Method 2: .....

(2)

(ii) Explain why **one** of these methods is appropriate for a sprinter.

.....

.....

(1)

(e) (i) To maintain peak performance sprinters must eat an appropriate diet. State **one** way in which a sprinter's diet might differ from that of an untrained person.

.....

.....

(1)

(ii) Explain your answer.

.....

.....

(1)

(f) What is the 'typical' body type for an **elite** sprinter?

.....

.....

(1)



Leave  
blank



- (g) A **warm up** is a very important part of a sprinter's preparation before a race. Complete the table below. State the phases of a **warm up** and describe a typical activity for each phase.

Phase of warm up	Typical Activity

(6)

- (h) (i) State **two** different types of injury that might result if the sprinter failed to warm up properly.



1. ....
2. ....

(2)

- (ii) Explain how **one** of these injuries should be treated.

.....

.....

(1)

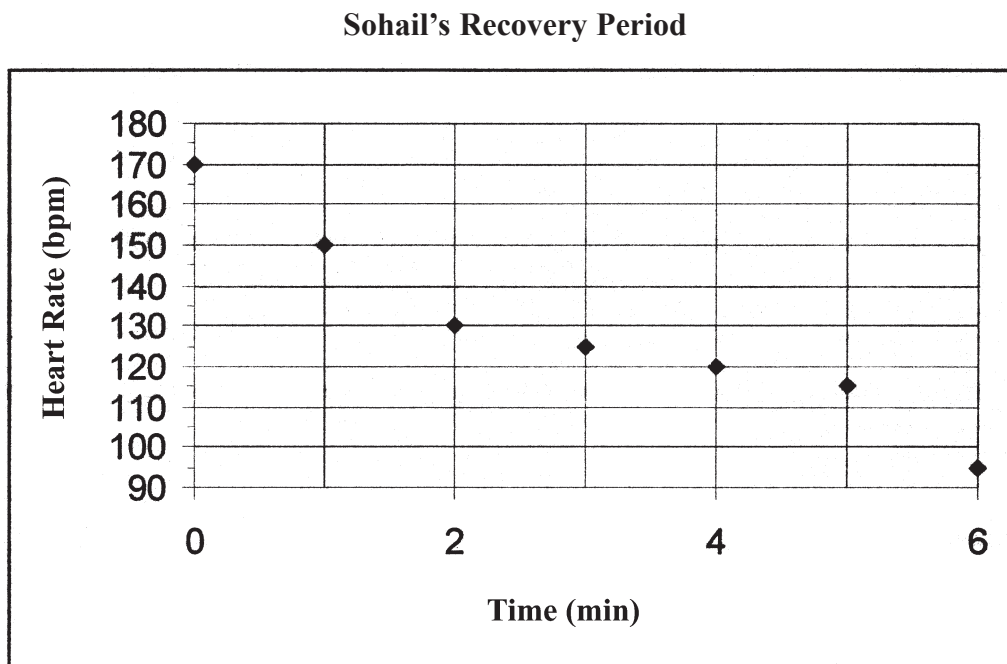
Q19

(Total 20 marks)

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20. Sohail is a GCSE PE student offering three games and an exercise activity for his practical assessment. In order to improve his performance he has followed a PEP, which has included a variety of training sessions. Figure 5 shows Sohail's heart rate values after a training session.

*Leave blank*



**Figure 5**

(a) Use the graph to describe what is happening to Sohail's heart rate.



.....

.....

.....

(3)

(b) During the exercise session Sohail made sure his heart rate was within his target zone. Explain the term **target zone**.



.....

.....

(2)



- (c) (i) Before exercise Sohail was breathing at a rate of 16 breaths per minute. Tick the appropriate box to show what would happen to his breathing rate as a result of hard exercise.

Stay the same

Slow down

Speed up

(1)

- (ii) Why does the respiratory system respond in this way?

.....  
.....

(1)

- (d) Changes in breathing rate may affect an athlete's tidal volume. Define the term **tidal volume**.

.....  
.....

(1)

- (e) Sohail was following a training programme to improve his fitness. Complete the table by stating **three** possible long-term benefits of regular training on his **cardiovascular** system and **two** on his **muscular** system.



<b>Cardiovascular System</b>	1.
	2.
	3.
<b>Muscular System</b>	1.
	2.

(5)

(f) Sohail was using fartlek training. Explain the term **fartlek training**.

.....  
.....  
(2)

(g) Why is fartlek training considered to be a good training method for games players?

.....  
.....  
(1)

(h) **Briefly** outline a fartlek training session for a **games** player.

.....  
.....  
.....  
(4)

Leave  
blank



Q20

(Total 20 marks)

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**TOTAL FOR PART THREE: 60 MARKS**

**TOTAL FOR PAPER: 150 MARKS**

**END**

## References

- Figure 2 Source: Fountain and Gee, *PE to 16*, Oxford University Press, 1996
- Figure 3 Source: Wesson, Wiggins, Thompson and Hartigan, *Sport and PE - A complete guide to advanced level study*, Hodder and Stoughton, 1998
- Figure 4 Source: Wesson, Wiggins, Thompson and Hartigan, *Sport and PE - A complete guide to advanced level study*, Hodder and Stoughton, 1998