PART ONE

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

(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

(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

(Total 1 mark)
4. Which of the following statements is essential in the planning of an overload training session?

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

(Total 1 mark)

5. Which of the following terms describes the ideal body type for an elite 5000m runner?

A  Somatotype
B  Ectomorph
C  Obese
D  Endomorph

(Total 1 mark)

6. Which of the following statements is an example of balanced competition?

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

(Total 1 mark)

7. Which of the following statements is correct for all arteries?

A  Take blood away from the heart
B  Take blood towards the heart
C  Carry oxygenated blood
D  Carry deoxygenated blood

(Total 1 mark)
8. Which of the following lead into the alveoli in the lungs?
   A  Pleural membrane  
   B  Bronchi       
   C  Septum        
   D  Bronchiole    
   (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    
   (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  
    (Total 1 mark)

TOTAL FOR PART ONE: 10 MARKS
PART TWO

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:** ........................................

<table>
<thead>
<tr>
<th>Components of skill related fitness</th>
<th>Why it is important to your activity?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>
| 4.                                  |                                      | (8)

(Total 14 marks)
12. Sports performers train in order to improve their performance.

(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.

<table>
<thead>
<tr>
<th>Health related fitness component</th>
<th>How performance is improved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved flexibility</td>
<td>Able to stretch further and reach more shots</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

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

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

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.............................................................................................................................................. (1)
(c) Give an example of how you could use overload and progression in your Personal Exercise Programme (PEP).

Overload: ..............................................................................................................

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

Progression: ...........................................................................................................

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

(2)

(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.

![Position A](image1) ![Position B](image2)

**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: .................................................................

(b) What **two** components of fitness might this performer be trying to develop through this exercise?

1. ........................................................................................................

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

(d) Why is it important to consider the order of the exercises when planning a circuit?

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

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........................................................................................................................................
........................................................................................................................................
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(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.

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

(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)

(Total 12 marks)
Figure 3 is a diagram of the human muscular system from the front and the back.

(a) In the table below name the muscles labelled and state the main function for each.

<table>
<thead>
<tr>
<th>Muscle</th>
<th>Function of the muscle</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
</tr>
<tr>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>
15. The cardiovascular and respiratory systems make up the cardio-respiratory system.

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

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

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

(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.

<table>
<thead>
<tr>
<th>Label</th>
<th>Anatomical Name</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(e) (i) What happens to an individual's **heart rate** when they start exercising?

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

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

........................................................................................................................................
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........................................................................................................................................
........................................................................................................................................
........................................................................................................................................ (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?

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

(Total 16 marks)

(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)

(Total 9 marks)
17. The skeleton provides support and gives us our shape.

(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)

(Total 8 marks)

TOTAL FOR PART TWO: 80 MARKS
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:

<table>
<thead>
<tr>
<th>pivot</th>
<th>ball and socket</th>
<th>radius</th>
</tr>
</thead>
<tbody>
<tr>
<td>adduction</td>
<td>trapezius</td>
<td>rotation</td>
</tr>
<tr>
<td>extension</td>
<td>bicep</td>
<td>hinge</td>
</tr>
<tr>
<td>scapula</td>
<td>thoracic vertebrae</td>
<td>agonistic</td>
</tr>
<tr>
<td>femur</td>
<td>atlas and axis</td>
<td>antagonistic</td>
</tr>
<tr>
<td>tricep</td>
<td>ulna</td>
<td>humerus</td>
</tr>
<tr>
<td>flexion</td>
<td></td>
<td>clavicle</td>
</tr>
</tbody>
</table>

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)
Complete the table below by stating three components of a synovial joint, other than bone, and explain the purpose of each.

<table>
<thead>
<tr>
<th>Component</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example: Bone</td>
<td>Forms joint to allow movement/muscle attachment</td>
</tr>
<tr>
<td>(i)</td>
<td></td>
</tr>
<tr>
<td>(ii)</td>
<td></td>
</tr>
<tr>
<td>(iii)</td>
<td></td>
</tr>
</tbody>
</table>
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.

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: ..........................................................................................................................

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

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

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

(2)

(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)
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.

<table>
<thead>
<tr>
<th>Phase of warm up</th>
<th>Typical Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

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

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

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

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

Q19

(Total 20 marks)
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.

**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.

<table>
<thead>
<tr>
<th>Cardiovascular System</th>
<th>Muscular System</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td></td>
</tr>
</tbody>
</table>

(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)

(Total 20 marks)

TOTAL FOR PART THREE: 60 MARKS

TOTAL FOR PAPER: 150 MARKS

END