

**ADVANCED GCE****PHYSICAL EDUCATION****2566**

Exercise and Sport Physiology and the Integration of Knowledge of Principles and Concepts Across Different Areas of Physical Education

Candidates answer on the Answer Booklet

**OCR Supplied Materials:**

- 8 page Answer Booklet

**Other Materials Required:**

None

**Monday 1 February 2010**  
**Morning**

**Duration: 1 hour 30 minutes**

**INSTRUCTIONS TO CANDIDATES**

- Write your name clearly in capital letters, your Centre Number and Candidate Number in the spaces provided on the Answer Booklet.
- Use black ink. Pencil may be used for graphs and diagrams only.
- Read each question carefully and make sure that you know what you have to do before starting your answer.
- There are two sections in this paper.
- Answer the compulsory questions in Section A and **one** question from Section B.
- Do **not** write in the bar codes.

**INFORMATION FOR CANDIDATES**

- The number of marks is given in brackets [ ] at the end of each question or part question.
- The total number of marks for this paper is **60**.
- You are advised to spend no longer than 30 minutes on Section A.
- There is a total of 45 marks available in Section B.
  - 26 marks will be available for knowledge content, 19 marks are available for your ability to critically analyse and link your knowledge across different areas of PE, making connections between them and practical performance. The quality of written communication will also be taken into account.
  - Your answers should be in continuous prose and you are advised to link the two parts of the question you have chosen.
  - You are advised to spend no longer than one hour on Section B.
- This document consists of **8** pages. Any blank pages are indicated.

### Section A

Answer the question in this section.

You are advised to spend no longer than 30 minutes on this section.

#### Exercise and Sport Physiology

- 1 (a) A performer carries out a number of fitness tests. Table 1 gives the results of two of these tests.

**Table 1**

Component of Fitness	Test	Result	Evaluation by comparison with norm tables
Aerobic Capacity	<b>Test A</b>	Predicted $\text{VO}_2$ max = 50ml/kg/min	HIGH
<b>Fitness Component B</b>	Abdominal Curl Conditioning test	Stage 6	VERY GOOD

- (i) Identify test A and fitness component B. [2]
- (ii) Explain **three** physiological factors related to the heart and skeletal muscle that enable the performer to score so highly on test A. [3]
- (b) Describe the physiological implications of **both** a warm up and a cool down on skeletal muscle. [4]
- (c) Describe proprioceptive neuromuscular facilitation (PNF) flexibility training and explain why PNF is considered to be such an effective method of stretching. [6]

**[Total: 15 marks]**

**Section B**

Answer **one** question only, **either** Question 2 (Scientific Focus)  
**or** Question 3 (Socio-cultural Focus)

**Question 2 (Scientific Focus)**

You must answer from both Part One **and** Part Two.

**Part One: answer either (a) or (b).**

**Either**

**(a)** (Application of Anatomical and Physiological Knowledge to Improve Performance)

The position of a performer's centre of mass is a fundamental concept to the understanding of balance and stability in sport.

What is meant by the term 'centre of mass'? Explain how scientific factors including changes in the position of a performer's centre of mass, can affect a performer's stability.

Tissue respiration is the exchange of gases between blood in the capillaries and muscle cells.

Explain how the exchange of oxygen is achieved between blood and muscle tissue at rest.

Explain why this process is increased during exercise.

**Or**

**(b)** (Acquiring and Performing Movement Skills)

What are the characteristics of intrinsic and extrinsic methods of motivation?

How would you use these methods to promote effective learning of movement skills?

Selective attention is an integral part of processing information to perform a movement skill.

Why is selective attention so essential for optimum performance?

**Part Two: answer either (c) or (d) or (e)****Either****(c) (Exercise and Sport Physiology)**

Endurance performers rely heavily on ATP re-synthesis using the aerobic system.

Outline the physiological processes that occur during Krebs's cycle (the second stage of the aerobic system). Discuss the advantages and disadvantages of the aerobic system.

RhEPO (recombinant erythropoietin) is an ergogenic aid that gives an unfair advantage to an endurance performer. Describe the effects of using RhEPO.

**Or****(d) (Biochemical Analysis of Human Movement)**

Using Newton's Laws of Motion, explain the effects of force acting on a projectile just prior to flight.

Other than the size of the applied force, identify and explain additional factors that can affect the horizontal distance achieved by a projectile.

**Or****(e) (Psychology of Sport Performance)**

The personality of the performer, their level of confidence and their ability to control aggression are all important in sport.

Describe the **three** main theories of personality in sport.

How would a coach raise the confidence of a performer in sport?

Explain **three** methods that can be used to eliminate aggressive tendencies in sport.

**[Total: 45 marks]**

**Question 3 (Socio-cultural Focus)**

You must answer from Part One **and** Part Two.

**Part One****(a)** (Contemporary Studies in Physical Education)

Discrimination in sport can affect minority groups such as the elderly and those with disabilities.

Explain possible problems facing **elderly people** in terms of their participation in physical recreation.

Describe what is being done or could be done to give **people with disabilities** who want to take part in physical recreation, better opportunity and provision.

**Part Two: Answer either (b) or (c)****Either****(b)** (Historical Studies in Physical Education)

In the late 19th and early 20th centuries the objectives, content and methodology of Elementary School syllabuses for physical activity changed considerably.

Describe:

- The Model Course, which was imposed on State schools in 1902.
- A typical Physical Education lesson based on the publications *Moving and Growing* (1952) and *Planning the Programme* (1954).

Briefly outline why you think a junior school Physical Education lesson of today is somewhat different to one from the 1950s.

**Or****(c)** (Comparative Studies in Physical Education)

Describe factors that have helped to improve sport and Physical Education in Australian Schools.

Compare the aims, funding and organisation of sport in UK Sports Colleges with that in High Schools in the USA.

**[Total: 45 marks]**





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