



UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS
General Certificate of Education
Advanced Subsidiary Level and Advanced Level

PHYSICAL EDUCATION

9396/13

Paper 1

October/November 2013

2 hours 30 minutes

Additional Materials: Answer Booklet/Paper

READ THESE INSTRUCTIONS FIRST

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Do not use staples, paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [] at the end of each question or part question.

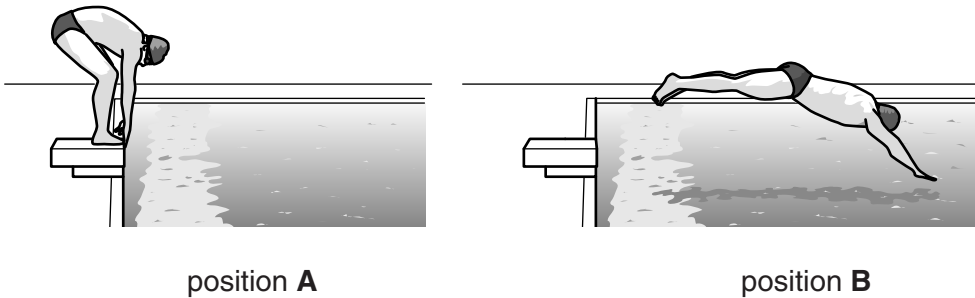
This document consists of **4** printed pages.



Answer **all** questions.

Section A: Applied Anatomy and Physiology

- 1 (a) Identify the items 1–5 in the table below, to describe a movement analysis of the hip and ankle joints during the execution of a sprint start by a swimmer, from Position **A** to Position **B**. Include the type of muscle contraction, the type of movement occurring and the agonist muscles.



	muscle contraction	movement	agonist muscles
hip joint	1	2	3
ankle joint		4	5

[5]

- (b) List the different muscle fibre types used at the various phases of a long distance swimming race. Select **one** fibre type and explain how its structure and function make it suitable for a specific phase of the race. [5]
- (c) During exercise the heart rate increases.
- (i) Outline the relationship between heart rate, cardiac output and stroke volume. [2]
- (ii) Identify and explain the factors that affect venous return and state how it changes during exercise. [4]
- (d) During exercise the muscles require an efficient supply of blood.
- (i) Identify the physiological factors that affect blood pressure during exercise. [3]
- (ii) Explain the changes in the pressure and velocity of the blood between leaving the left ventricle and returning to the right atrium of the heart. [4]
- (e) When exercising, the respiratory system plays an important role in gaseous exchange.
- (i) Describe how oxygen and carbon dioxide are transported by the blood. [3]
- (ii) Identify and explain the *neural* and *chemical* factors that control the respiratory rate of a performer during exercise. [4]

[Total: 30]

Section B: Acquiring, Developing and Performing Movement Skills

- 2 (a) Some sports, such as badminton, benefit from quick reactions when performing movement skills.
- Give **three** factors that could affect the reaction time of a performer. [3]
- (b) One theory of learning describes the strengthening of the stimulus response (S-R) bond.
- Explain what is meant by an S-R *bond* and how it can be strengthened when learning movement skills. [4]
- (c) One way of classifying movement skills uses the open-closed continuum.
- Give **three** characteristics of a closed skill. [3]
- (d) Schmidt's theory of the learning of motor skills assumes four rules of schema:
- knowledge of initial conditions
 - knowledge of response specifications
 - sensory consequences
 - movement outcomes.
- Explain briefly what is meant by a schema by describing **each** of these four rules. [4]
- (e) State the main functions of feedback when trying to learn a motor skill in sport. [5]
- (f) What is meant by *transfer of learning*?
- Using practical examples from learning motor skills explain how transfer can be either positive or negative. [5]
- (g) A performer's level of arousal often influences their performance of movement skills.
- Use the Inverted-U theory to explain how the level of arousal can affect performance of a movement skill. [6]

[Total: 30]

Section C: Contemporary Studies in Physical Education and Sport

- 3 (a) Fig. 3.1 is a physical activity continuum based on the level of organisation involved in each activity.



Fig. 3.1

- (i) Explain the meaning of *level of organisation*. [3]
- (ii) Explain why play appears to have the lowest level of organisation. [3]
- (iii) Describe the characteristics of sport which indicate that it has the highest levels of organisation. [3]
- (b) Explain the benefits to the individual of participating in physical activity. [4]
- (c) Elite sport is waging a constant battle over the use of performance enhancing drugs. [4]
- Explain why some performers choose to take performance enhancing drugs, and describe some of the measures which are in place to solve this problem. [6]
- (d) Using examples from sport, explain how the media has changed the nature of competition. [5]
- (e) (i) What is meant by the term *elite performer*? [2]
- (ii) Describe some of the physical and psychological qualities which are required by a performer to achieve excellence. [4]

[Total: 30]

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