

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

PHYSICAL EDUCATION

8666/01

Paper 1

October/November 2006

3 hours

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 **four** questions, **1 question from each of Sections A, B and C and 1 other from any section.**

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 **8** printed pages.



Section A Applied Anatomy and Physiology

Answer at least **one** question from this section.

- 1 (a) The gymnast in Figure 1 is performing a forward roll on the beam.

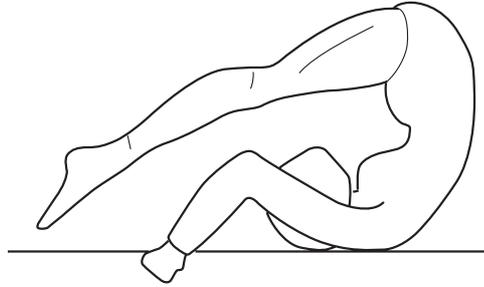


Figure 1

- (i) Identify the movement occurring in the spine. [1]
 - (ii) There are two types of joint which allow this movement to happen. Describe **one** of these joints. [2]
 - (iii) Name the agonist muscle which is responsible for this movement. [1]
- (b) The forward roll in Figure 1 is part of a routine performed by the gymnast.
- (i) Name the predominant muscle fibre type which is responsible for this type of exercise. [1]
 - (ii) Give **two** structural and **two** functional characteristics of this fibre type. [4]

- (c) The heart enables oxygenated blood to be delivered to the body and deoxygenated blood to be returned to the lungs.

Label points **A**, **B**, **C**, **D**, and **E** shown on Figure 2.

[5]

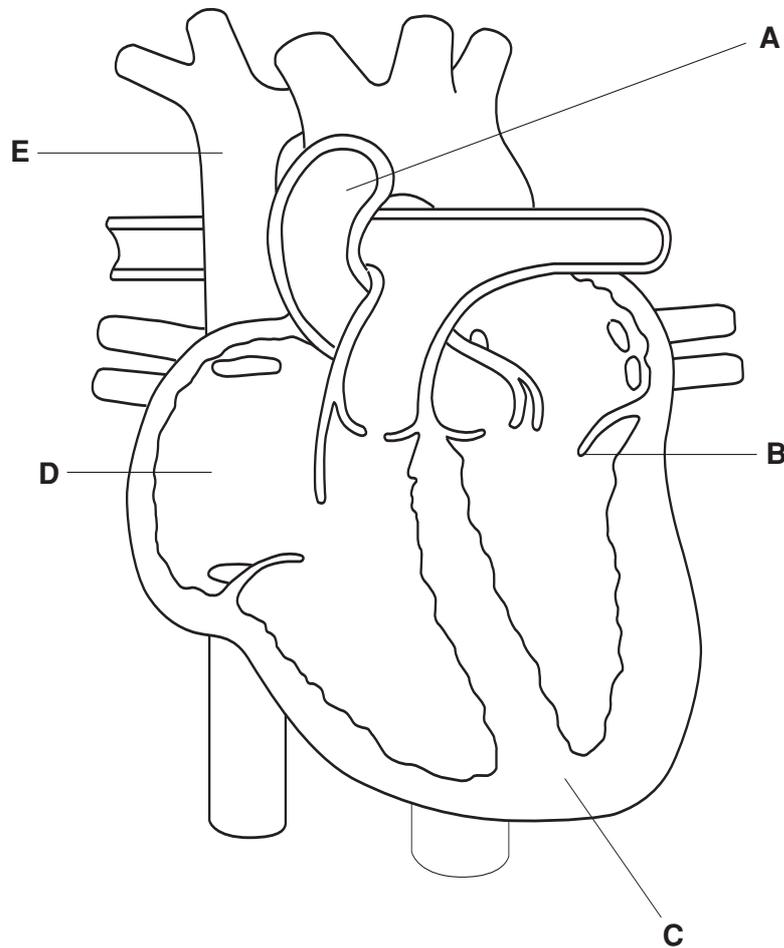


Figure 2

- (d) The body has to take in sufficient oxygen and expel carbon dioxide efficiently both at rest and whilst performing a gymnastics routine.
- (i) Describe the mechanics of breathing at rest. [4]
- (ii) Explain how the process of breathing adapts to take in more air during the gymnastic routine. [3]
- (e) Explain how oxygen is transferred from the blood to the muscle tissue during exercise. How is this beneficial to the performer during the gymnastic routine? [4]

[Total: 25]

- 2 (a) The elbow joint plays an important part in many sporting actions.



Figure 3

- (i) Using Figure 3 identify the movement which occurs at the hinge joint of the elbow. [1]
- (ii) Name the bones which articulate at the hinge joint of the elbow. [2]
- (iii) Explain antagonistic muscle action. [3]
- (iv) Name the agonist and antagonist muscles working to produce this movement at the hinge joint of the elbow. [2]
- (b) Muscles can exert forces of graded strengths, from very light movements to those requiring strength and power. Describe how this is achieved. [3]
- (c) Use an example from sport to describe eccentric muscle action. [2]
- (d) The amount of blood which the heart pumps out during exercise is an important factor influencing performance.
- (i) Define the terms; stroke volume, heart rate and cardiac output. [3]
- (ii) State the relationship between the three terms and explain how cardiac output is increased during exercise? [4]
- (e) Cardiac muscle has the ability to generate its own electrical impulse.
- Describe the structures involved in the conduction system of the heart and the path of the cardiac impulse through the heart. [5]

[Total: 25]

Section B Acquiring, Developing and Performing Movement Skills

Answer at least **one** question from this section.

- 3 (a) Describe four characteristics of a skilful performance. [4]
- (b) Classification of skills can be based on the organisational continuum. Using examples from physical education or sport, describe;
- (i) a low organisation skill, [3]
- (ii) a high organisation skill. [3]
- (c) Cognitive theories of learning are concerned with thinking and understanding rather than connecting stimuli with responses.
- Explain how the Gestalt theory of learning can be applied to the acquisition of skill. [5]
- (d) A fast reaction time is important in achieving success in many sports.
- (i) Define reaction time. [1]
- (ii) Describe a sporting situation which requires a fast reaction time. [2]
- (iii) Describe **three** factors which affect reaction time. [3]
- (e) Motor ability underpins successful performance of skills. Use a specific motor ability to explain the model shown in Figure 4. [4]

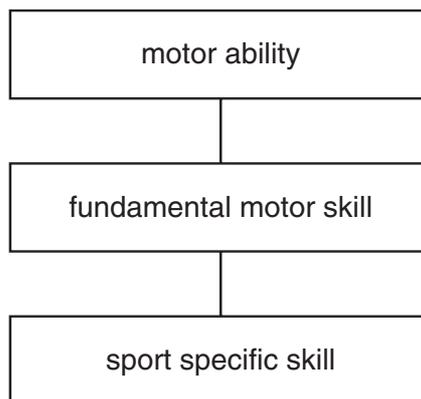


Figure 4

[Total: 25]

- 4 (a) Skill classification uses continua to show that skills have characteristics to a lesser or higher extent.
- (i) Define a closed skill. [2]
 - (ii) Define an open skill. [2]
- (b) Classify the following skills on the open and closed continua.
- (i) a javelin throw,
 - (ii) a pass in rugby,
 - (iii) a tennis serve,
 - (iv) receiving a badminton serve. [4]
- (c) The cognitive, associative and autonomous phases have been identified as three phases in the learning of motor skills.
- (i) How would a teacher know when a performer reaches the autonomous phase of learning? [1]
 - (ii) What would a teacher do to ensure that the learner stays in the autonomous phase? [3]
- (d) When the ball hits the top of the net during a rally in tennis, the response by the receiver is delayed.
- (i) What is the technical term which describes this delay? [1]
 - (ii) Explain why this delay occurs. [4]
- (e) The term reinforcement is often used in the process of learning motor skills.
- (i) Define the term reinforcement. How does reinforcement influence the learning of a motor skill? [2]
 - (ii) Operant conditioning is a theory of motor learning. Using an example from sport describe the use of reinforcement in operant conditioning. [4]
 - (iii) Punishment is often used by coaches yet has an adverse effect on young sports performers. How does punishment differ from negative reinforcement? [2]

[Total: 25]

Section C Contemporary Studies in Physical Education and Sport

Answer at least **one** question from this section.

- 5 (a) Explain why an activity such as swimming could be considered as:
- (i) Play, [2]
 - (ii) Physical Education, [2]
 - (iii) Recreation, [2]
 - (iv) Sport. [2]
- (b) Physical Education is a physical experience which takes place in schools.
Describe the values of a Physical Education programme. [4]
- (c) To achieve gold medals in Olympic Games is very costly.
Explain, using a country of your choice, how top class sport is funded. [5]
- (d) Issues arise in the pursuit of excellence in all countries. In many countries gender roles are determined by society and are reflected in sport.
- (i) Discuss the reasons for discrimination against women in sport in a country of your choice. [4]
 - (ii) How can the media help to reduce this discrimination? [4]

[Total: 25]

- 6 (a) Sport is now considered to be a matter of national importance.

Describe the main characteristics of sport. [4]

- (b) Elitism is the dominance by a select group in sport. Elite performers are given additional support so that they reach international success.

Explain the advantages and disadvantages of elitism in Sport. [4]

- (c) Using an example from a country of your choice describe the provision of Sport at local level. [5]

- (d) Big business can be linked to professional sport. The aim of both sport and business is to win.

(i) Define professionalism. [1]

(ii) Explain the advantages and disadvantages to the performer of being a professional in sport. [6]

(iii) Discuss how the “win at all costs” approach can impact on the ethics of Sport. [5]

[Total: 25]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (UCLES) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

University of Cambridge International Examinations is part of the University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.