

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
Advanced GCE

PHYSICAL EDUCATION

2566

Exercise and Sport Physiology and the integration of knowledge of principles and concepts across different areas of Physical Education

Tuesday **31 JANUARY 2006** Morning 1 hour 30 minutes

Additional materials:
8 page Answer booklet

TIME 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and Candidate number in the spaces provided on the answer paper/answer booklet.
- Write your answers on the separate answer paper provided.
- If you use more than one sheet of paper, fasten the sheets together.
- There are two sections in this paper.
- Answer the compulsory question in Section A and **one** question from Section B.
- Read each question carefully and make sure you know what you have to do before starting your answer.

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 answer 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 question paper consists of 6 printed pages and 2 blank pages.

Section A

Answer the question in this section.

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

Sport and Exercise Physiology

- 1 (a) Define aerobic capacity and list the factors that affect a performer's VO_2 max. [3]
- (b) To improve aerobic capacity most performers will undergo a period of aerobic training while others may cheat by using illegal means.
- (i) Outline a training programme designed to improve the aerobic capacity of a performer. [4]
- (ii) Identify one illegal aid that might be used to enhance VO_2 max and describe the associated risks to a performer's health. [3]
- (c) Figure 1 shows the relationship between exercise intensity and oxygen uptake in trained and untrained performers.

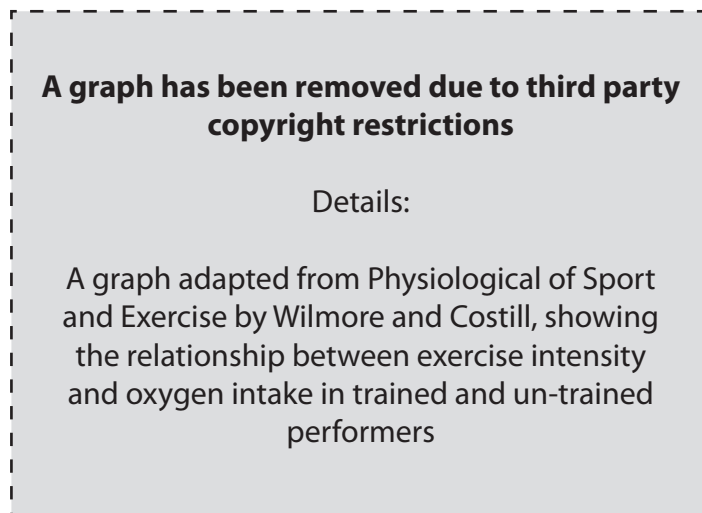


Fig. 1

Making reference to the physiological adaptations that occur in the cardiovascular and respiratory systems, explain why a trained performer can work at a higher intensity before reaching their VO_2 max. [5]

[Total: 15 marks]

Section B starts on page 3

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)

A hinge joint is one type of joint found in the body.

Identify the two hinge joints found in a lower limb.

Using one of the joints you have named, describe a movement analysis of kicking a football splitting it into 2 phases: preparation and execution.

During exercise the body has to respond to an increased demand for oxygen by the working muscles. Figure 2 shows the distribution of cardiac output during exercise.

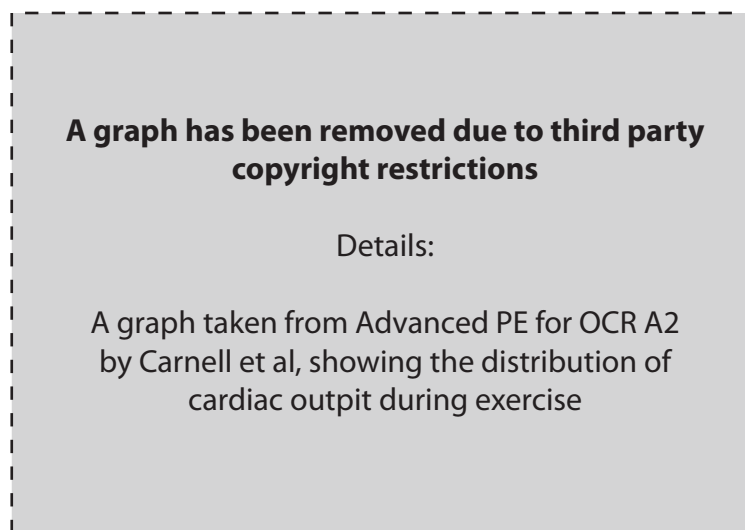


Fig. 2

Describe the mechanism that allows for the redistribution of blood flow during exercise and explain how it is controlled.

Or

(b) (Acquiring and Performing Movement Skills)

The level of arousal of a performer affects the acquiring and performing of movement skills.

What is meant by the term arousal?

Using **both** Drive theory and Inverted U theory show how the level of arousal can affect performance.

Using examples from sport identify and justify motivational strategies for a beginner learning a new skill.

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

The type of training used during a training programme will depend on the individual performer. For example, a goal keeper in association football will have different training requirements from a midfield player.

Define interval training and identify the advantages of this type of training.

Identify two different types of performer. Describe how an interval training session can be manipulated to suit the requirements of each. Outline **one** interval training session that is specific to **one** of your performers.

Injury and muscle soreness are a risk to any performer.

Explain the physiological implications of warming up and cooling down.

Or**(d) (Biomechanical 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)**

Anxiety in sport is often regarded as a negative emotion that hinders performance.

Describe the different types and sources of anxiety in sport.

Using examples from sport, explain how anxiety can be managed in order to improve performance.

[Total: 45 marks]

Question 3 (Socio-cultural Focus)

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

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

Participation in Physical Education and sport can be of great benefit to young people.

Discuss the values or benefits to be gained from Physical Education in Schools.

Define sport and identify various ways that young people can experience sport both in and out of schools.

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

Describe the physical activity of state elementary school children in 1902 and of public school boys during stage three, when athleticism was fully developed. Your answer should include information on both content and methodology.

Discuss the objectives of **both** of the approaches that you have described.

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

School sport is different in all countries

Describe how the Union Nationale du Sport Scolaire (UNSS) improves the quality of sports performance in French schools.

Compare UK Specialist Sports Colleges with USA High Schools. Your answer should include information on attitude and provision in relation to competitive school sports.

[Total: 45 marks]

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