

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

Monday **31 JANUARY 2005** Morning 1 hour 30 minutes

Additional materials:
Answer paper/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 7 printed pages and 1 blank page.

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 the terms energy, work and power, giving the units of measurement for each. [3]
- (b) ATP is a most important compound.
Explain why ATP plays such a major role during physical activity. [3]
- (c) A trained athlete can perform at a higher percentage of their VO_2 max before reaching OBLA than an untrained person.
- (i) Explain OBLA. [3]
- (ii) Describe how an athlete would make use of the principles of training when designing a training programme aimed at delaying OBLA. [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)

'There can be no motion without force.'

Using your understanding of Newton's laws, explain this statement giving examples from a team game of your choice.

At full time in a team game, players will enter a period of recovery, during which the body will return to its pre-exercise state.

Describe how the sensory receptors inform the cardiac control centre that exercise has stopped at the end of the match.

After the final whistle, it is recommended that players complete a cool down. Describe the physiological implications of an active cool down.

Or

- (b) (Acquiring and Performing Movement Skills)

Describe the types of guidance used when teaching movement skills to a novice. Write a set of guidelines for a coach about how and when these guidance methods should be used to teach a novice movement skills in sport.

When teaching movement skills, both whole and part practice methods could be used. In what circumstances could **part practice** be used for teaching movement skills.

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

The body uses oxygen during recovery from exercise resulting in an elevated rate of aerobic respiration. The first stage of this process involves the breakdown of glycogen to pyruvic acid.

Describe the remaining stages that use oxygen to complete the breakdown of glycogen.

An ergogenic aid is any substance that enhances performance.

Discuss the following as aids to enhancing performance

- the use of dietary manipulation
- pre competition meals
- post competition meals

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

Explain the factors that affect the size of fluid friction acting on a moving body and describe how it can be reduced in order for the body to move faster.

Explain how the Bernoulli Effect changes the normal flight path of a projectile in a sport of your choice.

(Use diagrams to illustrate your answer wherever possible.)

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

The quality of leadership is an important influence on team performance and cohesion.

What are the main qualities of an effective leader in sport?

The styles of a leader can differ according to the needs and expectations of the leader and the group, as well as the demands of the situation.

Explain the different circumstances that would demand a task-orientated style and a social orientated style of leadership in sport.

[Total: 45 marks]

Question 3 (Socio-cultural Focus)

You must answer from both Part One and Part Two.

Part One (Contemporary Studies in Physical Education)

(a) Britain has many surviving festivals and customs.

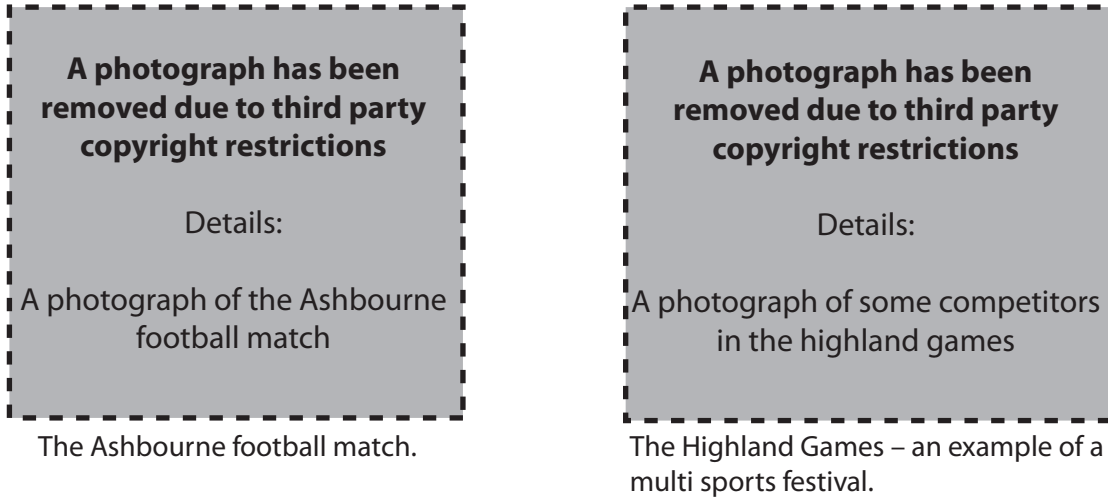


Fig. 1

Outline the characteristics of surviving ethnic sports in Britain, such as those in Fig. 1, and explain why they have survived.

In tribal societies such as Samoa, sports and pastimes have developed through pre-colonial, colonial and now post-colonial times.

Summarise the development of sports and pastimes in each of the three stages – pre-colonial, colonial and post-colonial.

Part Two: answer either (b) or (c)

Either

(b) (Historical Studies in Physical Education)

With the help of Fig. 2 and your own knowledge describe:

- Mob football as a popular recreation
- Football or rugby in the public schools and
- Football as a rational recreation .

Explain these changes in football, from the popular to the rational form, by referring to the influence of working conditions , urban expansion and transport .

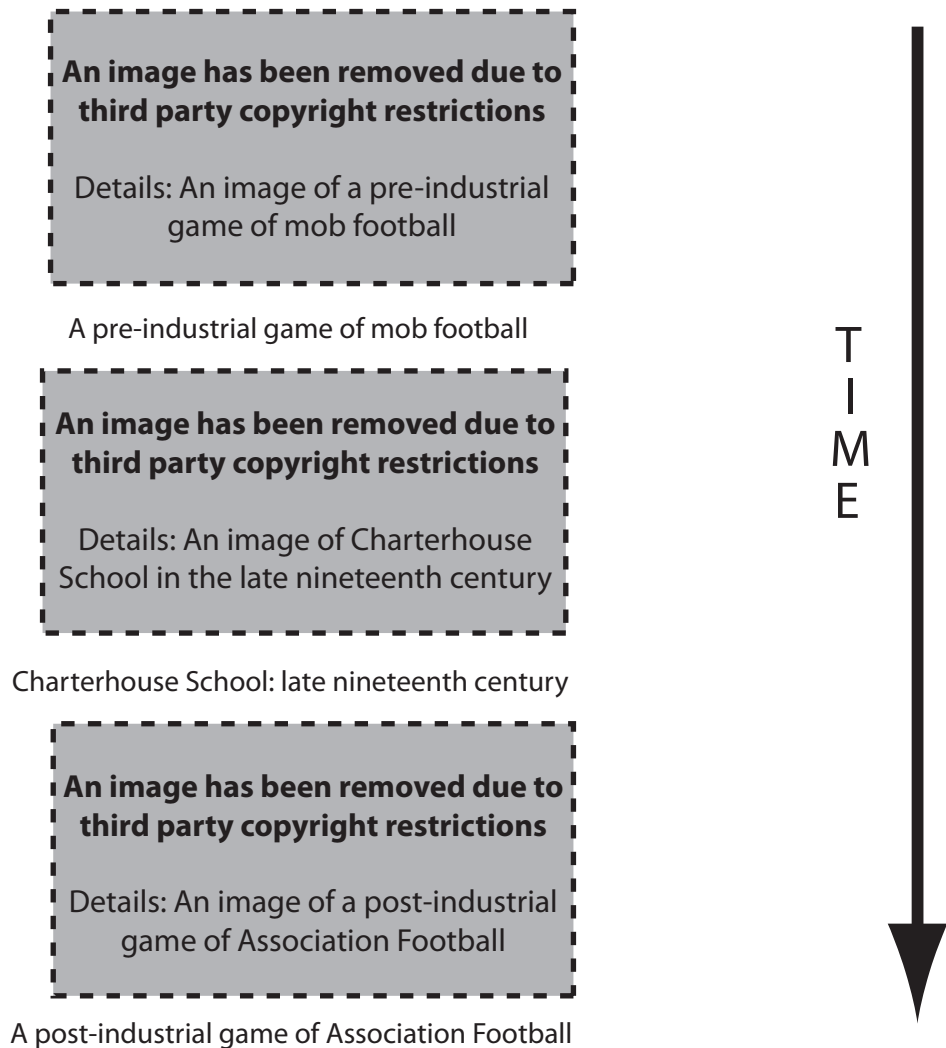


Fig. 2

Or

(c) (Comparative Studies in Physical Education)

Only professional soccer in the UK is approaching the level of commercialism found in all USA professional games.

Discuss this statement by comparing USA professional games with UK professional soccer in terms of **commercial developments** and the **characteristics of the sports** as they are played in their respective societies.

[Total: 45 marks]

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