General Certificate of Education
January 2005
Advanced Level Examination

ASSESSMENT and QUALIFICATIONS ALLIANCE

SPORT AND PHYSICAL EDUCATION PED4
Unit 4

Monday 31 January 2005 Morning Session

In addition to this paper you will require:
a 12-page answer book.

Time allowed: 1 hour 30 minutes

Instructions

- Use blue or black ink or ball-point pen. Pencil should only be used for drawing.
- Write the information required on the front of your answer book. The *Examining Body* for this paper is AQA. The *Paper Reference* is PED4.
- Answer **four** from **five** questions.
- Do all rough work in the answer book. Cross through any work you do not want marked.

Information

- The maximum mark for this paper is 64.
- Mark allocations are shown in brackets.

Advice

- You will be assessed on your ability to use an appropriate form and style of writing, to organise relevant information clearly and coherently, and to use specialist vocabulary, where appropriate.
- The degree of legibility of your handwriting and the level of accuracy of your spelling, punctuation and grammar will also be taken into account.
- Up to 4 marks will be awarded for the quality of your written communication.

Physiological, Biomechanical and Psychological Factors which Optimise Performance

Answer **four** from **five** questions.

1 **Total for this question: *15 marks***

Elite performers will usually work with their coaches to produce a long-term structured training programme to improve their performance.

(a) In this context, what do you understand by the term *periodisation*? *(3 marks)*

(b) Describe **five** structural **and/or** physiological differences that you would expect to find between an elite athlete and a non-athlete, resulting from the effects of this training programme. *(5 marks)*

Elite performers often use *goal setting* as part of their training programme.

(c) What value does *goal setting* have for the performer? *(2 marks)*

(d) Outline the factors that make *goal setting* effective. *(5 marks)*

2 **Total for this question: *15 marks***

Team game players tend to play and train as a group in order to improve their performances.

(a) (i) What do you understand by the term *group cohesion*? *(3 marks)*

(ii) Explain how the size **and** structure of a group may affect its cohesiveness. *(3 marks)*

(iii) Discuss whether cohesive groups are always more successful. *(3 marks)*

(b) Training programmes will often include exercises to improve flexibility.

(i) Describe the **method** involved in *Proprioceptive Neuromuscular Facilitation* (*PNF*) stretching. *(4 marks)*

(ii) Using your knowledge of *muscle spindle apparatus*, explain why *PNF* stretching tends to produce better results in terms of increased flexibility than other forms of stretching. *(2 marks)*

3 **Total for this question: *15 marks***

When competing on their own, elite performers such as ice skaters are affected by many factors.

(a) An elite performer's motivation may be affected by their level of arousal. **Figure 1** shows two graphs (**A** and **B**) that may be used to explain how arousal varies during performance.

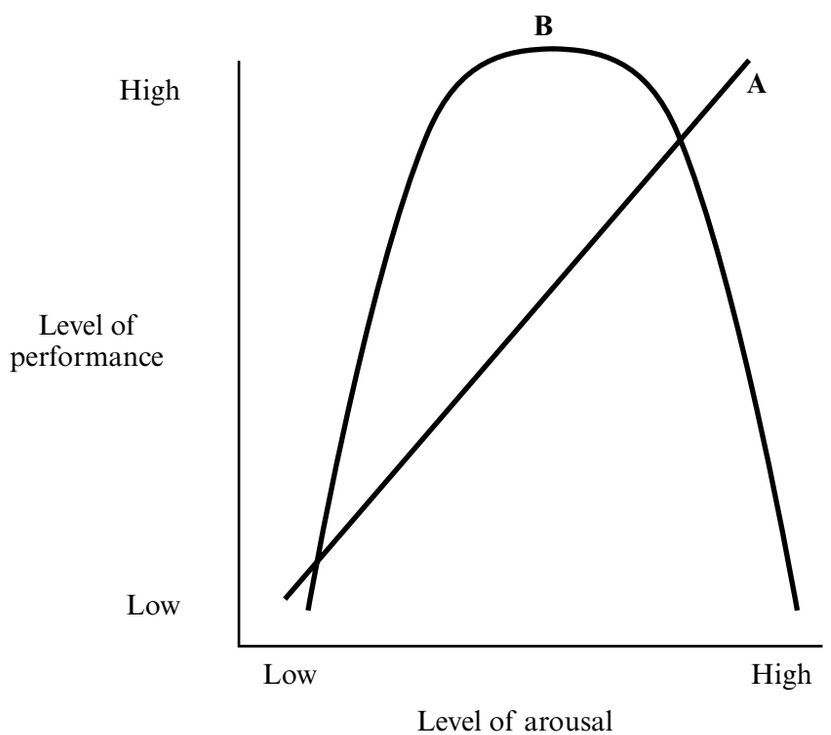

Figure 1

(i) Identify the theories represented by graphs **A** and **B** in **Figure 1**. *(2 marks)*

(ii) Describe how **each** theory may be used to explain the effects of arousal on performance. *(7 marks)*

(b) Explain how a spinning ice-skater is able to alter their speed of rotation by changing their body shape. *(6 marks)*

TURN OVER FOR THE NEXT QUESTION

4 **Total for this question: *15 marks***

The outcome of a sprint race may be determined by a performer's personality and ability to overcome and generate forces to provide acceleration and maintain velocity.

(a) The performance and behaviour of sports performers may be affected by their personalities. Discuss this statement, using suitable examples, with reference to both *trait* **and** *interactionist* theories of personality. *(7 marks)*

(b) **Figure 2** shows a velocity/time graph for an elite 100-metre sprinter.

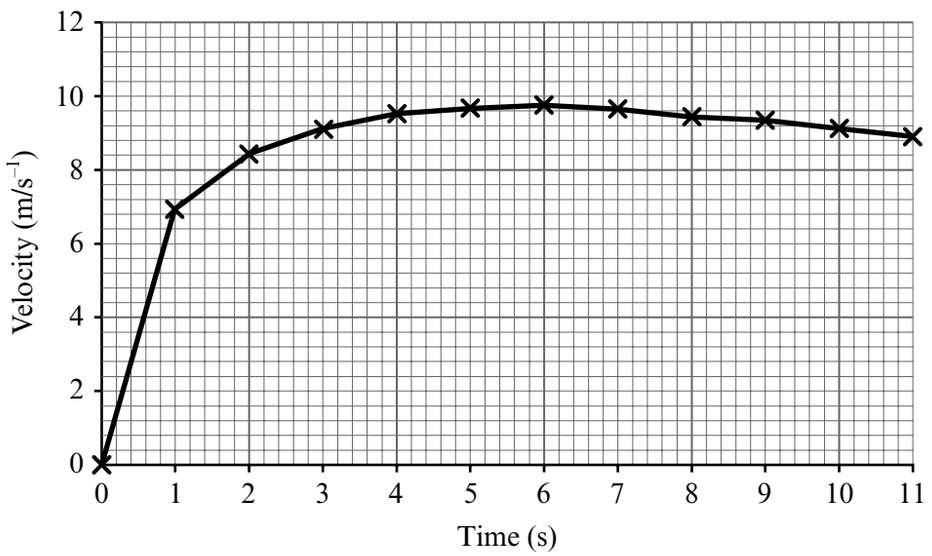

Figure 2

(i) Use **Figure 2** to determine the *velocity* of the sprinter after 3 seconds, **and** identify the period of time when the sprinter's *acceleration* was the greatest. *(2 marks)*

(ii) What is happening to the sprinter between 6 and 11 seconds? Explain why this occurs. *(3 marks)*

(c) Identify the forces **A**–**E** in **Figure 3** that act on the sprinter during a race. *(3 marks)*

Figure 3 is not reproduced here due to copyright restraints.
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5 **Total for this question: *15 marks***

Team game players need to manage both their physiological and psychological demands during performance.

Figure 4 shows the average proportions of carbohydrate and fat used during a period of exercise of increasing intensity.

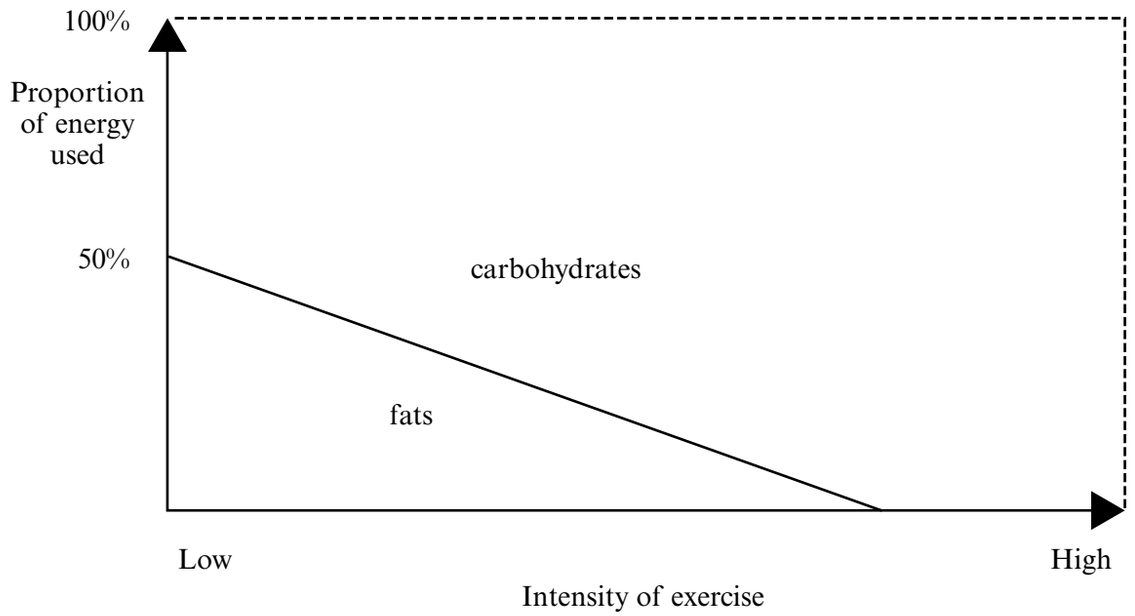

Figure 4

(a) What does **Figure 4** show **and** explain, using your knowledge of *energy systems*, why this occurs. *(6 marks)*

(b) Players in contact sports often display both *aggressive* and *assertive* behaviour.

(i) Distinguish between *aggressive* and *assertive* behaviour. *(3 marks)*

(ii) Using your knowledge of appropriate theories, discuss the idea that playing contact sports **may** increase **or** reduce *aggressive* behaviour within the game situation. *(6 marks)*

END OF QUESTIONS