

General Certificate of Education
January 2008
Advanced Level Examination



SPORT AND PHYSICAL EDUCATION
Unit 4

PED4

Wednesday 30 January 2008 9.00 am to 10.30 am

For this paper you must have:

- 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 to be marked.

Information

- The maximum mark for this paper is 64.
- Four of these marks will be awarded for Quality of your Written Communication.
- The marks for part questions are shown in brackets.
- You are reminded of the need for good English and clear presentation in your answers. All questions should be answered in continuous prose. Quality of Written Communication will be assessed in all answers.

Physiological, Biomechanical and Psychological Factors which Optimise Performance

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

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

Weight training involves the use of resistance as a means of overloading the body to improve strength.

Lifting heavy weights above the head requires considerable self-efficacy. A coach may try to improve the self-efficacy of an individual who uses weight training, through vicarious experiences.

- (a) (i) What do you understand by the term *self-efficacy*? (2 marks)
- (ii) How may a coach make *vicarious experiences* a suitable method for improving self-efficacy? (2 marks)
- (b) How does high self-efficacy help a performer to produce better performances? (3 marks)
- (c) Weight training is used by some performers as a method of training because of its effects on the body. Describe **five** physiological **and/or** structural changes that occur in the body as a result of a weight-training programme. (5 marks)
- (d) Elite performers will use periodisation to organise their training programmes so that they are at their peak performance for a competition. What do you understand by the term *periodisation*? (3 marks)

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

A performer's physical and mental characteristics will have an impact on their effectiveness in competitive situations.

- (a) (i) It has been suggested that performers should be screened or tested to establish the proportions of different *muscle-fibre types* before deciding which activity to concentrate on.

Discuss whether such tests should be the only consideration when choosing an activity. (4 marks)
- (ii) Contraction of different types of muscle fibres involves the use of motor units. What do you understand by the term *motor unit*? (2 marks)
- (iii) How are motor units involved in the process of *spatial summation*? (2 marks)
- (b) Psychologists have presented different theories to explain personality. One of these theories is trait theory.

Explain the *trait theory* of personality. (3 marks)

Question 2 continues on the next page

- (c) It has been suggested that a performer's response to competition will vary according to the situation and their personality.

What are the characteristics of a performer with a motive (need) to achieve (*n.Ach*)?
(4 marks)

3

Total for this question: 15 marks

The production of an elite performance involves the maximising of effort during the activity. One difficulty facing performers is that competitive situations may often be seen as stressful, which may lead to anxiety.

- (a) (i) Distinguish between *cognitive anxiety* and *somatic anxiety*. (2 marks)
- (ii) How do cognitive and somatic anxieties vary in the periods leading up to **and** during competition? (3 marks)
- (b) Name and describe **one** technique for managing the effects of stress. (3 marks)

Maximising effort during performance is largely concerned with the correct application of forces.

- (c) (i) What *forces* act on a player when they are running during a game? (3 marks)
- (ii) During the game, a performer kicks a ball. Describe the effects of forces on the flight of the ball. (4 marks)

4

Total for this question: 15 marks

Elite athletes spend considerable time developing their fitness, using a variety of methods, in order to produce peak performance.

- (a) (i) Explain why some athletes, such as marathon runners, may choose to spend time training at altitude. (3 marks)
- (ii) What are the potential problems associated with *altitude training*? (3 marks)
- (b) Marathon runners may use *carbo-loading* as a means to improve performance. What do you understand by this term **and** why might marathon runners need to do this? (3 marks)
- (c) Elite performers usually have a positive attitude towards training. If this were not the case, briefly outline how *attitudes* to training could be changed. (3 marks)
- (d) Performers may attribute their success and/or failure to various factors. What do you understand by the term *attribution retraining*, **and** when would it become necessary? (3 marks)

Turn over for the next question

5

Total for this question: 15 marks

Games players often play in teams and have to ensure that they have sufficient energy to last the duration of the match.

Carron (1982) defined cohesion as ‘a dynamic process which is reflected in the tendency for a group to stick together and remain united in the pursuit of its goals and objectives’.

- (a) What antecedents (factors) may affect the cohesiveness of a group? (4 marks)
- (b) Name and explain the **four** stages that teams (groups) go through during their formation. (4 marks)

Games often last for over an hour and performers have to cope with high levels of energy expenditure.

- (c) How is the majority of energy required by games players produced? (4 marks)
- (d) During a game, performers may suffer fatigue because they have a low lactate threshold (OBLA).

What do you understand by the term *lactate threshold* **and** how is this related to $\dot{V}O_2 \max$? (3 marks)

END OF QUESTIONS

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