

General Certificate of Education
January 2008
Advanced Subsidiary Examination



SPORT AND PHYSICAL EDUCATION
Unit 1

PED1

Monday 21 January 2008 1.30 pm to 3.00 pm

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 PED1.
- 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 75.
- The marks for questions are shown in brackets.
- Three of these marks will be awarded for using good English, organising information clearly and using specialist vocabulary where appropriate. You will also get marks for good handwriting, spelling, punctuation and grammar.

Physiological and Psychological Factors which Improve Performance

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

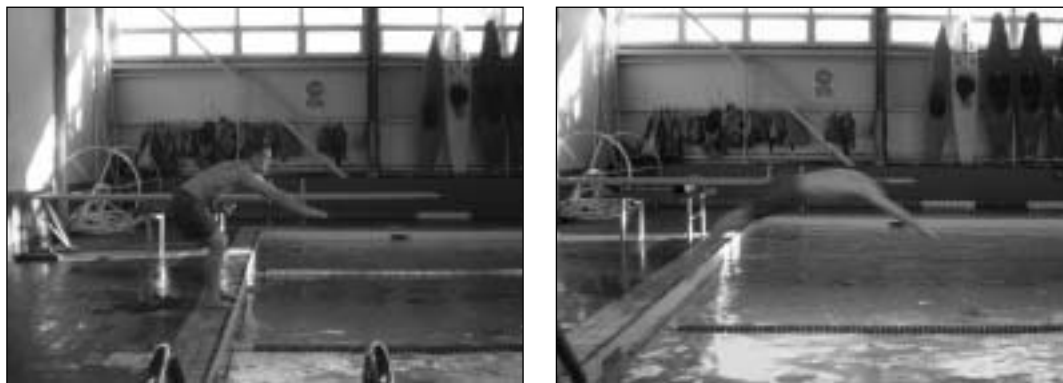
1

Total for this question: 18 marks

In sprint swimming races, swimmers need a quick and efficient start.

Figure 1 shows a swimmer performing a racing start.

Figure 1



Position A

Position B

- (a) (i) With reference to **Figure 1**, copy and complete **Table 1** in your answer book, identifying the *joint action* and the *main agonist* at the hip, knee **and** ankle as the swimmer moves from **position A** to **position B**. (6 marks)

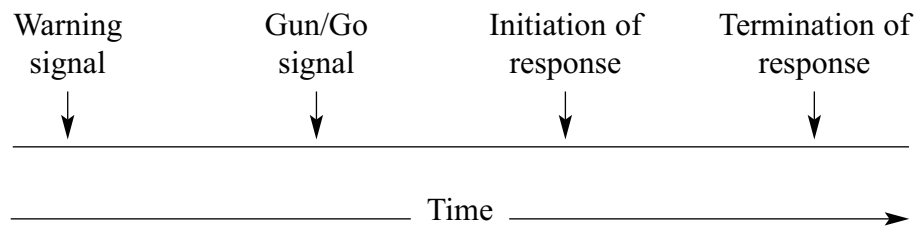
Table 1

	Movement from position A to B	
	Joint action	Main agonist
Hip		
Knee		
Ankle		

- (ii) Name, sketch and label the lever system operating at the ankle during the racing start. (3 marks)

- (b) (i) **Figure 2** shows the various stages that occur before, during and at the end of the racing start.

Figure 2



Explain the terms *movement time* **and** *response time*, giving examples of each in relation to the performance of the racing start. (4 marks)

- (ii) What can the swimmer do to improve their response time? (3 marks)
- (iii) Is the racing start an example of *simple reaction time* or *choice reaction time*? Justify your answer. (2 marks)

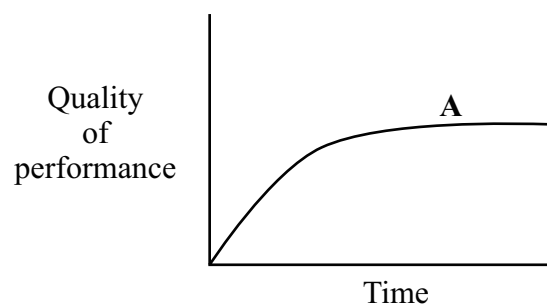
2

Total for this question: 18 marks

Health, fitness and fitness testing play an important role in successful performance.

- (a) (i) What do you understand by the terms *fitness* **and** *health*? (2 marks)
- (ii) What are the benefits of *fitness testing*? (4 marks)
- (iii) What are the limitations of *fitness tests*? (3 marks)
- (b) **Figure 3** shows the performance curve of a performer conducting a skills test.

Figure 3



Using **Figure 3**, identify phase **A** of the curve **and** give reasons for its occurrence. (5 marks)

- (c) Describe **four** ways that a coach could help a performer overcome phase **A**. (4 marks)

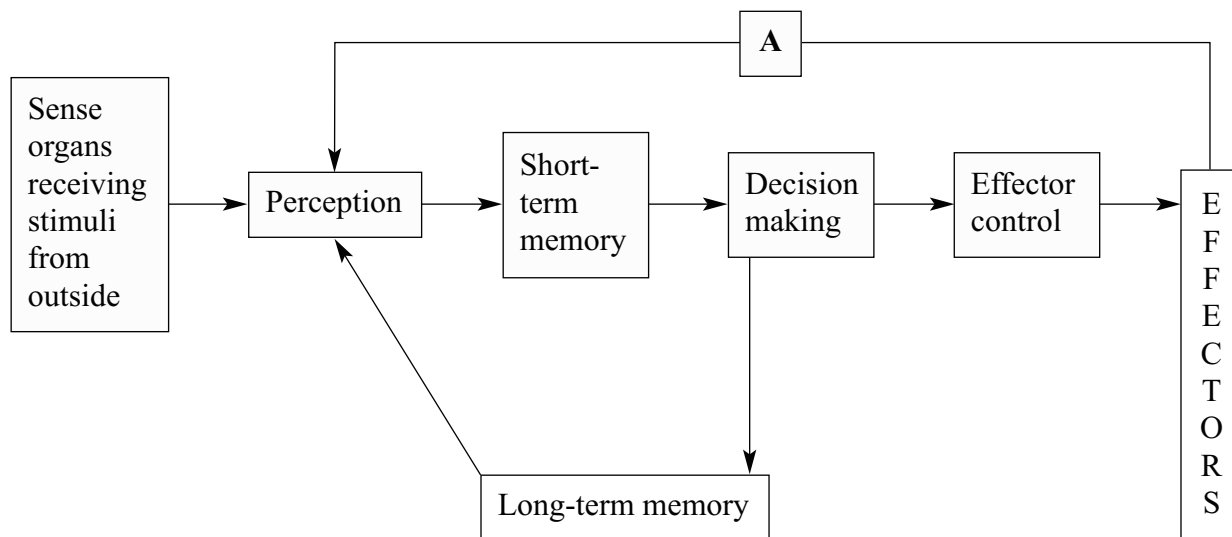
3

Total for this question: 18 marks

Performance in team games relies on good information processing and an efficient circulatory system.

Figure 4 shows an information processing model.

Figure 4



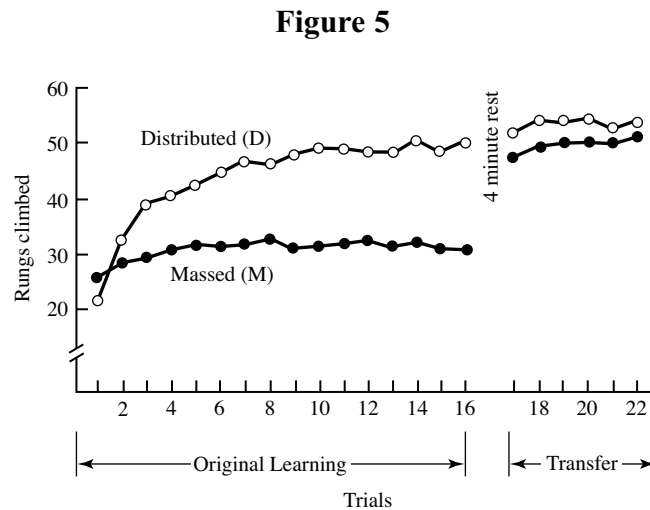
- (a) Using **Figure 4**, explain:
- the role of *perception* within *information processing* (3 marks)
 - the role **and** characteristics of the *long-term memory* in information processing during team games. (3 marks)
- (b) The information processing model shown in **Figure 4** is incomplete. Name the missing component **A** **and**, using examples from a team game, explain its function. (3 marks)

When exercising, a games player will experience changes in the way in which blood is distributed around the body.

- (c)
- Explain why the blood flow to the brain during a game remains the same as at rest. (2 marks)
 - Explain why there is a need for an increase in blood flow to the skeletal muscles during the game and how this is achieved. (4 marks)
 - What factors determine the blood pressure in blood vessels? (3 marks)

A games player's performance can be improved through practice and the use of fitness tests.

Figure 5 shows the performance on a ladder task (rungs climbed) performed under massed and distributed conditions.



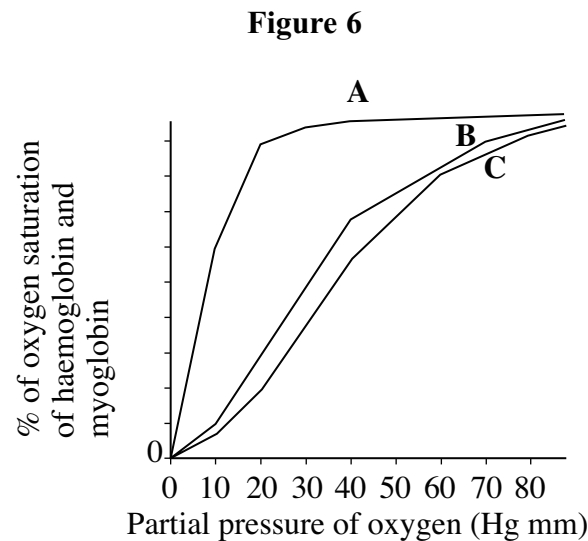
- (a) What do you understand by the terms *massed practice* **and** *distributed practice*? (2 marks)
- (b) (i) Using **Figure 5**, describe and explain the results of both the massed and distributed practice groups before the 4 minute rest period. (3 marks)
- (ii) Suggest reasons why, after the 4 minute rest period, the number of rungs climbed are similar for both groups. (2 marks)
- (c) Climbing the ladder during the experiment in **Figure 5** is an example of a skill. Explain the difference between *skill* **and** *ability*. (2 marks)

Agility and flexibility are two important fitness components required by games players.

- (d) (i) What do you understand by the terms *agility* **and** *flexibility*? (2 marks)
- (ii) Describe a suitable test for measuring **each** of these components. (4 marks)
- (e) Fitness tests should be *objective*, *valid* and *reliable*. What do you understand by these terms? (3 marks)

During a game, the success of a tennis player will be affected by the efficiency of their cardio-respiratory system and by the quality of shots that they play.

Figure 6 shows a graph of the relationship between the partial pressure of oxygen and the saturation of haemoglobin and myoglobin.



- (a) Which of the curves **A**, **B** and **C** represents the following:
- haemoglobin during exercise
 - myoglobin
 - haemoglobin at rest? (2 marks)
- (b) Explain the causes of the increase in breathing rate experienced during exercise. (4 marks)
- (c) During exercise, the *arterial venous difference* ($a\text{-}VO_2$ diff) increases. What do you understand by the term *arterial-venous difference* **and** what is the significance of this increase to the performer? (3 marks)

The service action in tennis can be taught using either the whole or the part method of practice.

- (d) (i) What factors should a coach consider when deciding to use *whole* or *part methods of practice*? (3 marks)
- (ii) What are the advantages of using the whole method of practice? (3 marks)
- (iii) Some students would have more success if they were taught using the *part* method of practice.

What do you understand by this term **and** why would it be more effective with some performers? (3 marks)

END OF QUESTIONS

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