

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
Advanced Subsidiary GCE
PHYSICAL EDUCATION



2562

The Application of Physiological and Psychological Knowledge to Improve Performance

Friday **20 JANUARY 2006** Afternoon 1 hour 30 minutes

Additional materials:
None

Candidate Name

Centre Number

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Candidate Number

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TIME 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

- Write your name, Centre number and Candidate number in the boxes above.
- Answer **all** questions.
Two questions from Section A (Application of Anatomical and Physiological Knowledge to Improve Performance).
Two questions from Section B (Acquiring and Performing Movement Skills).
- Write your answers, in blue or black ink, in the spaces provided on the question paper.
- Read each question carefully and make sure you know what you have to do before starting your answer.
- Do not write in the bar code. Do not write in the grey area between the pages.
- **DO NOT WRITE IN THE AREA OUTSIDE THE BOX BORDERING EACH PAGE. ANY WRITING IN THIS AREA WILL NOT BE MARKED.**

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.

FOR EXAMINER'S USE	
1	
2	
3	
4	
TOTAL	

This question paper consists of 12 printed pages.

Application of Anatomical and Physiological Knowledge to Improve Performance

- 1 (a) Figure 1 shows a tennis player completing a service (execution phase).



Fig. 1

- (i) Use the diagram to help you complete the following joint analysis.

Shoulder joint during extension

Type of joint:

Articulating bones:

Agonist:

Type of contraction at agonist:

Wrist joint during flexion

Agonist:

Antagonist:[6]

- (ii) Tennis players need to develop strength in their leg muscles. Identify one exercise which would develop strength in each of the following muscles.

Gastrocnemius

Rectus Femoris[2]

(b) A cool down has a number of effects on the vascular system which aid the performer. One effect is the prevention of blood pooling. Identify **two** other effects.

Effect 1

.....
.....

Effect 2

.....
..... [2]

(c) During sub-maximal (aerobic) exercise the predominant muscle fibre type would be slow oxidative (type 1). Give one structural and one functional characteristic of this fibre type.

Structural characteristic:

Functional characteristic: [2]

(d) Figure 2 shows a spirometer trace of lung volumes of a performer at rest.

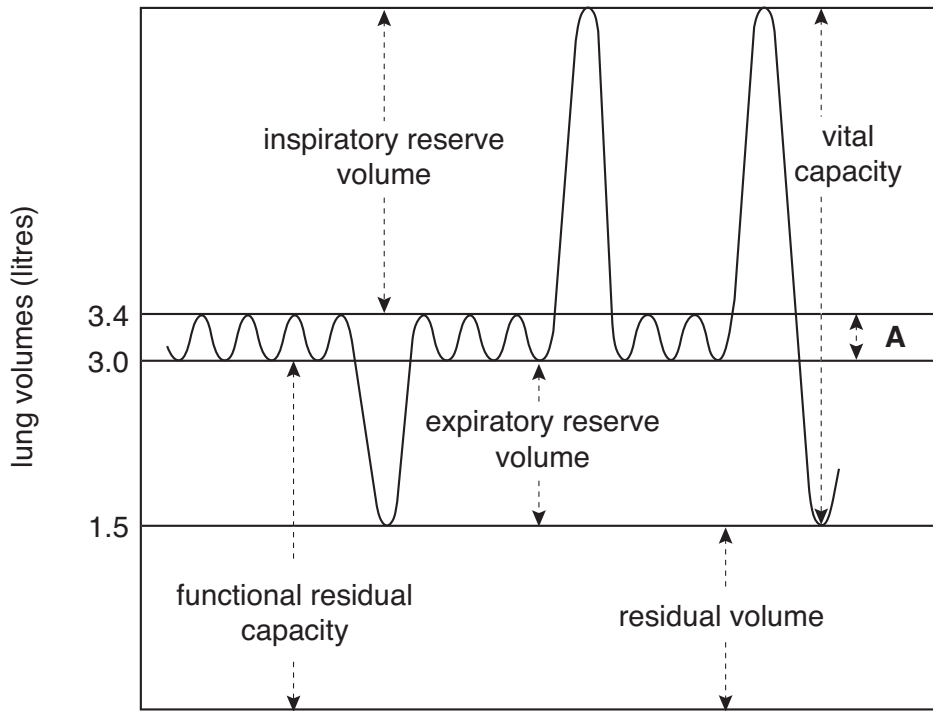


Fig. 2

(i) Name and define the lung volume labelled A.

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.....

..... [2]

(ii) What change would you expect in lung volume A as the performer starts to exercise?

.....

..... [1]

[Total: 15]

2 (a) Large amounts of blood need to be circulated around the body during prolonged aerobic exercise.

(i) Identify the mechanisms of venous return that ensure a sufficient supply of blood is returned to the heart during exercise.

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..... [3]

(ii) An increase in venous return leads to an increase in heart rate. Explain how this is achieved by intrinsic control.

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..... [2]

(iii) Describe how the blood travels through the heart in the following stages of the cardiac cycle.

Diastole:

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Atrial Systole:

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Ventricular Systole:

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..... [3]

[Turn over

(iv) Whilst exercising a greater volume of blood is ejected during ventricular systole. Why is this beneficial to performance?

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..... [1]

(ii) How is oxygen transported in the blood to the working muscles?

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.....
..... [2]

[Total: 15]

Section B

Acquiring and Performing Movement Skills

3 (a) (i) Identify two characteristics of ability.

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..... [2]

(ii) Give a practical example of a psychomotor ability.

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..... [1]

(b) Memory plays a significant role in the performance of movement skills.

What strategies can be used to retain information in the long-term memory?

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..... [3]

(c) The pacing continuum contains both self-paced and externally paced skills.

Use practical examples to explain each of these two aspects of the pacing classification continuum.

Self-paced skills

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Externally paced skills

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..... [4]

(d) Drive Theory can be used to explain how arousal affects performance in sport.

(i) Sketch and label a graph to illustrate the effect of arousal on performance according to Drive Theory.

[3]

(ii) Use Drive Theory to explain how an increase in arousal would affect the performance of both a novice **and** an experienced performer.

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..... [2]

[Total: 15]

4 (a) It has been suggested that we pass through three phases when learning movement skills.

(i) Give **three** characteristics of the autonomous phase of learning.

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..... [3]

(ii) Use practical examples to describe **two** types of guidance that can be used at the cognitive phase of learning.

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..... [2]

(b) Use practical examples to identify **three** characteristics of skilful movement.

1.
.....
2.
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3.
..... [3]

(c) (i) For which movement skill classification continuum is the progressive part method of teaching appropriate?

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..... [1]

(ii) Use a practical example to describe how a teacher might use the progressive part method of teaching a movement skill.

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..... [3]

(iii) What are the advantages of teaching a movement skill using the whole method?

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..... [3]

[Total: 15]