

OXFORD CAMBRIDGE AND RSA EXAMINATIONS
Advanced Subsidiary GCE

PHYSICAL EDUCATION

2562

The Application of Physiological and Psychological Knowledge to Improve Performance

Thursday **20 JANUARY 2005** Afternoon 1 hour 30 minutes

Additional materials:
None

Candidate Name	Centre Number	Candidate Number										
	<table border="1" style="display: inline-table; width: 100px; height: 25px;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table>						<table border="1" style="display: inline-table; width: 100px; height: 25px;"> <tr> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> <td style="width: 20px;"></td> </tr> </table>					

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.

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 9 printed pages and 3 blank pages.

Section A

The Application of Physiological and Psychological Knowledge to Improve Performance

- 1 (a) Fig. 1 shows a netball player using the elbow joint during the execution phase of a shot.

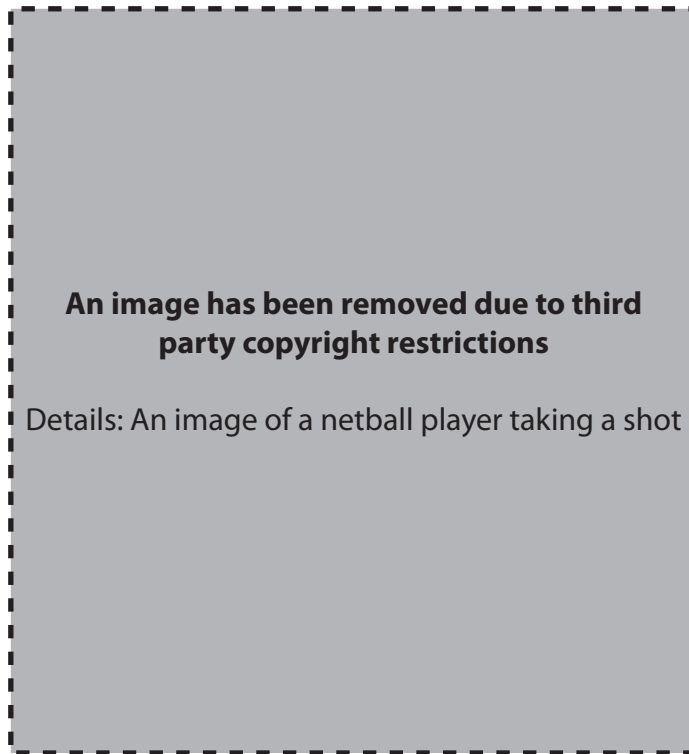


Fig. 1

- (i) Identify the type of joint, articulating bones, agonist and antagonist during extension of the elbow during the execution phase of the shot, shown in Fig. 1 above.

Type of joint:

Articulating bones:

Agonist muscle:

Antagonist muscle: [4]

- (ii) Name the type of contraction occurring at the agonist and give one exercise that could be used to improve the strength in that muscle.

Type of contraction:

Strength exercise: [2]

(iii) How would a warm up benefit the strength of muscle contractions when performing the strengthening exercise?

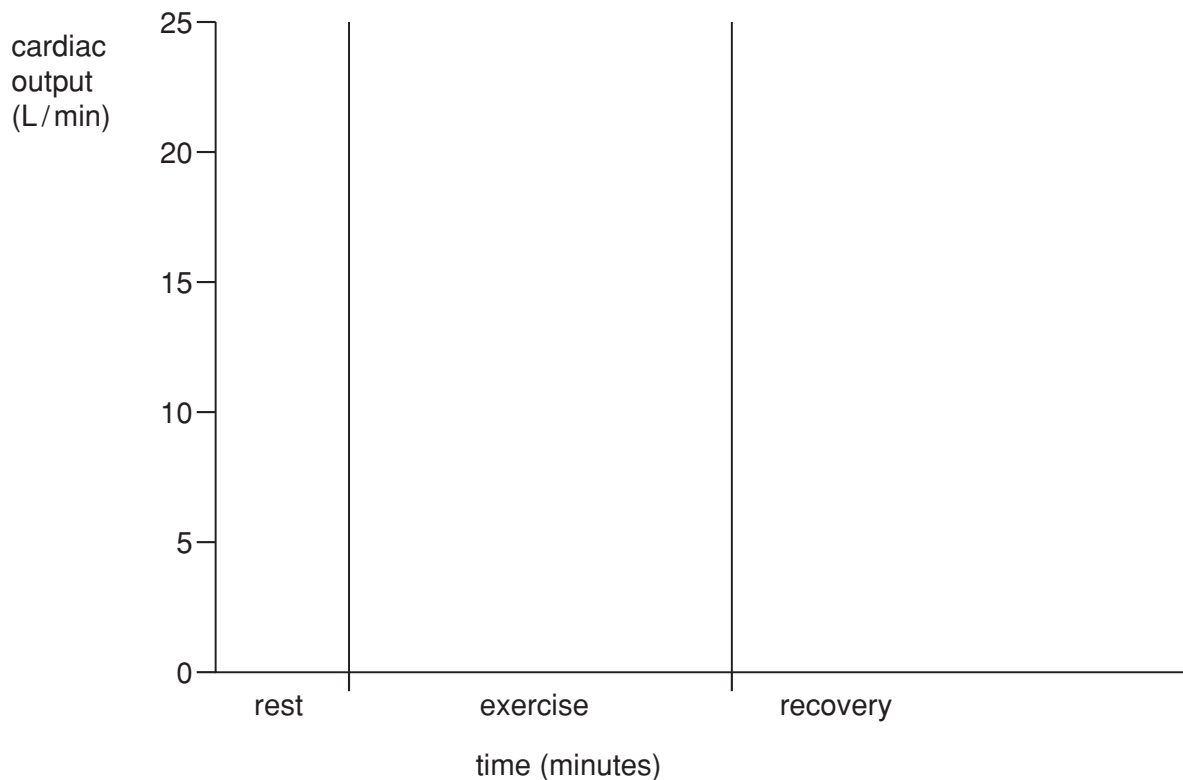
.....
.....
.....
.....
.....
..... [3]

(b) Following a training session a coach will require the performer to complete a cool down. How would a cool down aid the vascular system?

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

(c) Sketch a graph showing the changes you would expect in **cardiac output**:

- at rest,
- during a 30 minute submaximal training run,
- for a ten minute recovery period. [4]



[Total: 15]

2 (a) During aerobic performance a large amount of carbon dioxide is produced at the muscles.

(i) How is carbon dioxide diffused from the muscle tissue into the blood during exercise?

.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [3]

(ii) Describe the passage of deoxygenated blood through the systemic and pulmonary networks which allows carbon dioxide to be removed during aerobic performance.

.....
.....
.....
.....
.....
.....
.....
.....
.....
..... [4]

(iii) Identify **two** ways in which carbon dioxide is carried in the blood during aerobic performance.

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

(iv) Why does an increase in carbon dioxide during exercise increase heart rate? How does this happen?

.....
.....
.....
.....
.....
.....
.....
.....
..... [3]

(v) Describe how the mechanics of breathing alter during exercise to **expire** greater volumes of carbon dioxide.

.....
.....
.....
.....
.....
.....
.....
.....
..... [3]

[Total: 15]

Section B

Acquiring and Performing Movement Skills

3 (a) The development of motor skills can be explained by Fig. 2 below.

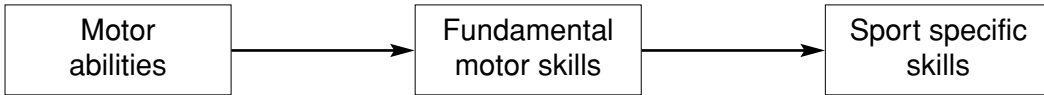


Fig. 2

Explain each stage of Fig. 2.

.....

.....

.....

.....

.....

..... [3]

(b) Reaction time is important in many sports skills.

(i) What is reaction time?

.....

.....

.....

..... [2]

(ii) Identify and explain **three** factors that can influence a performer's reaction time.

Factor 1

.....

Factor 2

.....

Factor 3

..... [3]

(c) Schema theory could be used to describe how a motor programme can be modified.

(i) Identify three sub-routines of a named motor programme.

Named motor programme

Sub-routines 1

2

3 [2]

(ii) Use an example from Physical Education or sport to explain recall and recognition schema.

Recall schema

.....

.....

.....

.....

Recognition schema

.....

.....

.....

..... [4]

(iii) Why is variability of practice important to schema theory?

.....

.....

..... [1]

[Total: 15]

4 (a) The learning of movement skills passes through three phases of learning according to Fitts and Posner.

(i) Name the **three** phases of learning.

Phase 1

Phase 2

Phase 3 [3]

(ii) Give **three** characteristics of the first phase of learning.

.....
.....
..... [3]

(iii) Explain why a demonstration of the skill is important at the first stage of learning.

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

(b) Anticipation can play an important role in sport.

(i) What is anticipation?

.....
..... [1]

(ii) Explain the effect of anticipation on response time.

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

(c) The control of physical movement can be explained through closed loop theory.

Use the example of a gymnast performing a handstand to explain closed loop control.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 15]

Permission to reproduce items where third-party owned material protected by copyright is included has been sought and cleared where possible. Every reasonable effort has been made by the publisher (OCR) to trace copyright holders, but if any items requiring clearance have unwittingly been included, the publisher will be pleased to make amends at the earliest possible opportunity.

OCR is part of the Cambridge Assessment Group. Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge.