

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Question	Mark
1	
2	
3	
4	
5	
6	
7	
TOTAL	



General Certificate of Education  
Advanced Subsidiary Examination  
June 2013

# Physical Education

# PHED1

## Unit 1 Opportunities for and the Effects of Leading a Healthy and Active Lifestyle

Thursday 23 May 2013 9.00 am to 11.00 am

You will need no other materials.

### Time allowed

- 2 hours

### Instructions

- Use black ink or black ball-point pen. Pencil should only be used for drawing.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

### Information

- The marks for part questions are shown in brackets.
- The maximum mark for this paper is 84.
- In **Section B**, you should answer in continuous prose.
- In **Section B**, you will be marked on your ability to:
  - use good English
  - organise information clearly
  - use specialist vocabulary where appropriate.



J U N 1 3 P H E D 1 0 1

H/Jun13/PHED1

# PHED1

**Section A**

Answer **all** questions in the spaces provided.

There are 12 marks for each question.

**Applied Exercise Physiology**

- 1 People may join gyms or fitness centres to improve their health and fitness. **Figure 1** shows an individual running on a treadmill at his local fitness centre.

**Figure 1**



- 1 (a) How may improved fitness, brought about by regular training on a treadmill, benefit the health of an individual?

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 .....  
 (1 mark)

- 1 (b) (i) As the runner in **Figure 1** exercises, his chemoreceptors will detect any increase in carbon dioxide levels.

Explain how this causes an increase in the runner's breathing rate.

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 (3 marks)



1 (b) (ii) The arterio-venous oxygen difference ( $a-vO_2$  diff) of the runner in **Figure 1** will increase during exercise.

What do you understand by the term  $a-vO_2$  diff **and** why does it increase during exercise?

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(2 marks)

1 (c) Explain the causes of the Bohr shift **and** how it increases oxygen delivery to the working muscles.

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(3 marks)

1 (d) Describe how running affects the venous return mechanism.

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(3 marks)

12

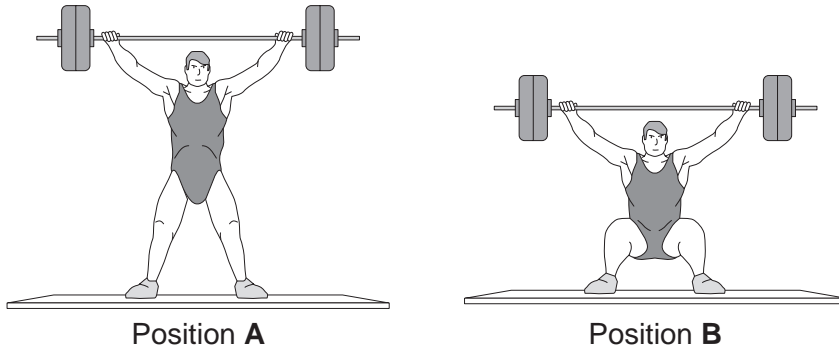
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2 Many performers use different weight-training exercises as a way of improving their overall fitness.

Figure 2 shows a performer moving into a squat from Position A to Position B.

Figure 2



2 (a) Complete Table 1 to identify the main agonist, the type of muscle contraction and the joint action at the **hip joint** during the isotonic movement from Position A to Position B.

Table 1

	Hip joint
Main agonist	
Type of muscle contraction	
Joint action	

(3 marks)

2 (b) Balance is an important aspect of weight-training.

What do you understand by the term balance?

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(2 marks)



2 (c) Some people exercise to control their weight.

Define the term obesity **and** suggest **one** limitation for any definition of this term.

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(2 marks)

2 (d) Weight-training demands an increase in blood supply to the active muscles.

**Table 2** shows how various measurements concerned with the heart vary during rest and during activity.

**Table 2**

	Rest	Activity
Heart rate (bpm)	70	150
Stroke volume (mls)	70	90
Systolic pressure (mmHg)	115	140

2 (d) (i) Using the information in **Table 2**, how would cardiac output at rest be calculated?

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(2 marks)

**Question 2 continues on the next page**

**Turn over ►**



**2 (d) (ii)** Use Starling’s law of the heart to explain how stroke volume increases during activity.

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(3 marks)

12

**Skill Acquisition**

**3** Games players will practise to improve their skills, but to do this regularly requires motivation.

**3 (a) (i)** How does intrinsic motivation differ from extrinsic motivation?

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(1 mark)

**3 (a) (ii)** Explain why intrinsic motivation is thought to be a better form of motivation than extrinsic motivation.

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(3 marks)



**3 (b)** Games players may find that their skill performance reaches a plateau.  
Suggest possible solutions that a coach could use to minimise a learning plateau.

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(4 marks)

**3 (c)** Skilful play within a game relies on effective information processing. According to Adam’s closed loop theory, two pieces of information called traces are used to control movement.

**3 (c) (i)** Name these **two** traces.

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(1 mark)

**3 (c) (ii)** Describe how these two traces are used to produce skilled movement.

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(3 marks)

12

Turn over ►



4 Passing a ball is an important aspect of many team games.

4 (a) Using examples of passing from a team game, explain the **differences** between motor ability and perceptual ability.

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(3 marks)

4 (b) Explain the functions of the short-term sensory store **and** the long-term memory when performing the skill of passing.

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(4 marks)

4 (c) Coaches will use reinforcement as part of operant conditioning to improve skill levels.

4 (c) (i) What is operant conditioning?

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(3 marks)





4 (c) (ii) Using an example from a team game, explain the term negative reinforcement.

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(2 marks)

12

**Opportunities for Participation**

5 Physical Education has developed since the 19th century.

5 (a) (i) Outline **two** objectives of teaching military drill in schools in the early 20th century (1902–1904).

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(2 marks)

5 (a) (ii) Since the 19th century, the provision for physical activity in state schools has regularly changed.

What changes occurred in Physical Education in state schools following World War II (1939–1945), and prior to the National Curriculum, to encourage a more movement-based approach?

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(4 marks)

**Question 5 continues on the next page**

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**5 (b)** Outdoor and adventurous activities are now offered as part of a school's Physical Education programme.

**5 (b) (i)** What are the benefits to students of participating in outdoor and adventurous activities?

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*(3 marks)*

**5 (b) (ii)** What problems do schools face in offering outdoor and adventurous activities?

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*(3 marks)*

<b>12</b>



**6** The Active People Survey 5 showed that the proportion of males participating in physical activity was 20.5%, whereas participation among females was 12.4%.

**6 (a)** What social **and** economic barriers may account for the lower participation rate of women in physical activity?

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*(4 marks)*

**6 (b)** Badminton is a popular physical activity amongst women.  
Suggest reasons why female participation rates are relatively high in this activity.

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*(4 marks)*

**Question 6 continues on the next page**

**Turn over ►**



**6 (c)** Badminton clubs organised by the voluntary sector provide opportunities for recreation within the local community.

What are the characteristics **and** goals of the voluntary sector?

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(4 marks)

12



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**Section B**

Answer this question.

There are 12 marks for this question.

In order to maximise your marks, you are advised to give equal weighting to all areas of the question.

**7** You have been asked to measure the fitness and to improve the skills of a group of AS Physical Education students.

Name and describe **one** suitable test that would measure the students' leg power **and one** test to measure their agility.

Using examples, explain how the different forms of feedback may help a performer to improve their skills.

*You may use this space to plan your answer.*

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