

Write your name here

Surname

Other names

Centre Number

Candidate Number

**Edexcel GCSE**

# Physical Education

## Unit 1: The Theory of Physical Education

Tuesday 14 May 2013 – Afternoon

**Time: 1 hour 30 minutes**

Paper Reference

**5PE01/01**

**You do not need any other materials.**

Total Marks

### Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*

### Information

- The total mark for this paper is 80.
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*
- Questions labelled with an **asterisk** (\*) are ones where the quality of your written communication will be assessed  
– *you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.*

### Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

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**PEARSON**

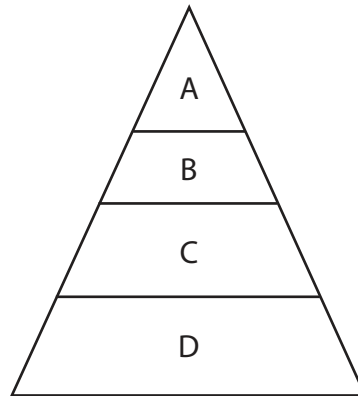
**Answer ALL the questions.**

**For each part of Question 1, choose an answer, A, B, C or D, and put a cross in the box ☒. Mark only one answer for each question. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.**

**1** (a) **Figure 1** shows the sports participation pyramid.

Which letter, A, B, C or D, represents the stage where participants begin to play a sport regularly, for example, joining an after-school club?

(1)



**Figure 1**

- A**
- B**
- C**
- D**

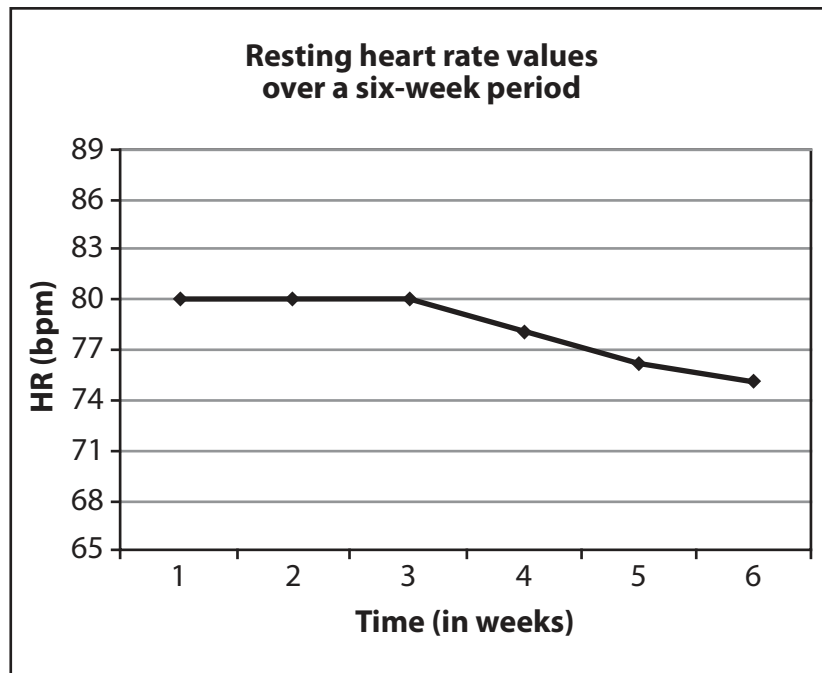
(b) Which **one** of the following performers relies most heavily on a high level of cardiovascular fitness for success?

(1)

- A** 200m runner
- B** 400m runner
- C** 800m runner
- D** 1500m runner



The graph in **Figure 2** shows the resting heart rate values collected by a GCSE PE student over a six-week period when they undertook a Personal Exercise Programme (PEP).



**Figure 2**

(c) Which **one** of the following principles of training has the student applied in their PEP to affect resting heart rates as shown in **Figure 2**?

(1)

- A** Specificity
- B** Progressive overload
- C** Reversibility
- D** Rest and recovery

(d) Which **one** of the following methods of training is **least** likely to improve **both** aerobic and anaerobic fitness?

(1)

- A** Circuit
- B** Fartlek
- C** Cross
- D** Weight



(e) Which **one** of the following nutrients should form the largest proportion of our diet? (1)

- A Vitamins
- B Fats
- C Proteins
- D Carbohydrates

(f) Which **one** of the following is **not** an effect of alcohol on the body? (1)

- A Reduced tension
- B Reduced concentration
- C Slower reflexes
- D Improved reaction time

(g) Despite the risks, some performers take drugs to improve their performance.

Which **one** of the following statements correctly links the performance enhancing drug with its effect **and** a performer who would benefit from this effect? (1)

- A Diuretics taken by a swimmer will relieve pain to allow them to continue to train
- B Peptide hormones taken by a 100m sprinter will lead to increased oxygen delivery during their event
- C Anabolic steroids taken by a discus thrower will allow them to train for longer and harder
- D Stimulants taken by a jockey will lead to rapid weight loss

(h) Which **one** of the following is **not** an effect of smoking on the respiratory system? (1)

- A High blood pressure
- B Emphysema
- C Bronchitis
- D Lung cancer



(i) Which **one** of the following is the correct statement about muscle action and antagonistic muscle pairs? (1)

- A** When a muscle contracts it pushes a bone, for example, the biceps and triceps
- B** Movement is brought about through antagonistic pairs, for example, the pectorals and abdominals
- C** Muscles are arranged in pairs, for example, the hamstrings and quadriceps
- D** When one muscle contracts the other relaxes to bring about movement, for example, the trapezius and latissimus dorsi

(j) Which statement correctly identifies the effect of calcium on the skeletal system? (1)

- A** Keeps the skeleton free from disease
- B** Gives the skeleton strength
- C** Provides the skeleton with energy
- D** Assists the skeleton in the production of red blood cells

**(Total for Question 1 = 10 marks)**



2 The individuals in **Figure 3** benefit from healthy, active lifestyles.



**Figure 3**

In the table below:

(a) Identify **three** mental health benefits of regular participation in physical activity. (3)

(b) State how each of your identified benefits is achieved. (3)

(a) Benefit of regular participation for mental health	(b) How your stated benefit is achieved

**(Total for Question 2 = 6 marks)**



**3** Theo's family regularly participates in physical activity and introduced Theo to a variety of sports. A hockey club is only five minutes walk from home so Theo has decided to play hockey.

Which **two different** categories of key influences have impacted on Theo's involvement in physical activity?

- 1. ....
- 2. ....

**(Total for Question 3 = 2 marks)**

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**4** A local authority pays retired PE teachers to run free fitness sessions for parents with young children. Another opened up its sports centres for use, free of charge, during the day.

(a) Identify **one** common purpose of these local authority initiatives. (1)

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(b) Describe **one** way in which the purpose you have identified in **4(a)** contributes to the development of a healthy, active lifestyle. (2)

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**(Total for Question 4 = 3 marks)**

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**5** Health-related exercise demands can vary within sporting activities.

For a named activity of your choice, identify a different situation or technique when the stated components, listed below, would be used in this activity.

Name of activity .....

(a) Muscular strength (1)

.....  
.....

(b) Muscular endurance (1)

.....  
.....

(c) Flexibility (1)

.....  
.....

**(Total for Question 5 = 3 marks)**





6 When setting goals to plan involvement in physical activity it is important to apply the principles of SMART targets.

The statements below are all examples of Year 10 students' SMART targets.

A I need to take 60 seconds off my 3000m time as soon as possible.

B I want to improve by one lap in the Cooper's run test within the next month.

C I will complete a two mile run in under 10 minutes.

(a) Apart from 'specific' which principle of SMART target setting have **all** three Year 10 students applied?

(1)

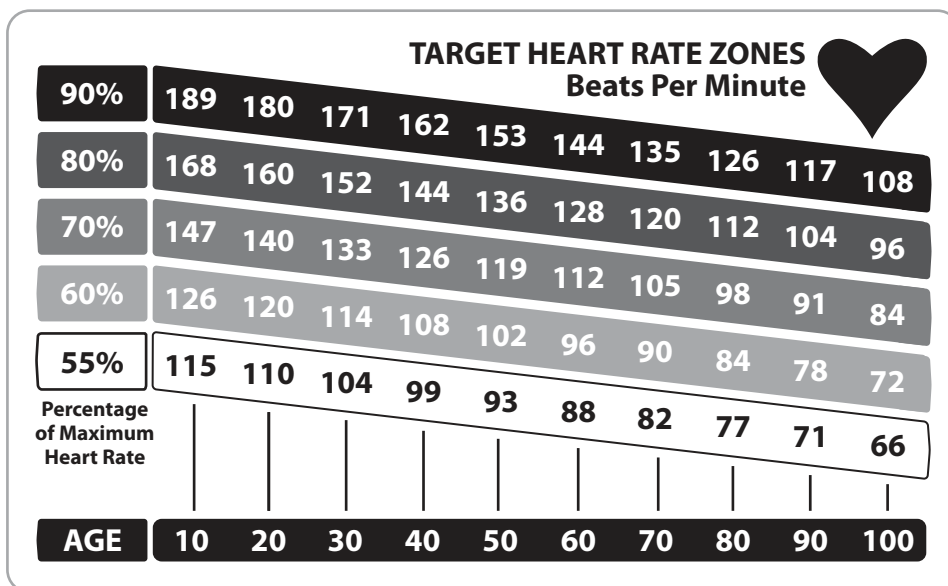
(b) Explain which of the Year 10 targets, above, would be considered to be the **most** effective target for a performer.

(3)

(Total for Question 6 = 4 marks)



7 The graph in **Figure 4** shows suggested target heart rate zones depending on age.



**Figure 4**

(a) Using **Figure 4**, state the suggested heart rate values that a 40-year-old should work between to ensure they are in the correct target zone to improve their cardiovascular fitness.

(1)

(b) Explain why the suggested target zone for a 20-year-old is different to that suggested for a 40-year-old.

(3)



(c) Our heart rate will vary depending on whether we are physically resting, working or recovering.

Explain why resting heart rate is lower than recovery heart rate.

(3)

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**(Total for Question 7 = 7 marks)**

**8** Explain the importance of micronutrients in maintaining a healthy, active lifestyle.

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**(Total for Question 8 = 2 marks)**



9 Participating in activities like whitewater rafting, shown in **Figure 5**, involves risk.



**Figure 5**

Other than drowning, identify a risk that could be associated with this activity **and** a measure that could be used to reduce this risk.

Risk

.....  
Measure to reduce risk

.....  
.....  
**(Total for Question 9 = 2 marks)**



10 (a) The equation in the box below is incomplete.

Complete the equation that is used to calculate the amount of blood ejected from the heart per minute.

(1)

..... = **Heart Rate** × .....

(b) Blood pressure can be used to help monitor the health of an individual.

(i) A normal blood pressure reading would be 120/80. The 120 represents systolic blood pressure. Name the other blood pressure represented in this reading.

(1)

(ii) Explain the immediate effect of exercise on blood pressure.

(2)

(Total for Question 10 = 4 marks)



**11** As soon as we start to exercise our breathing rate and depth of breathing increases.

(a) Explain **two** reasons why the respiratory system responds in this way when beginning exercise.

(i) Explanation one

(2)

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(ii) Explanation two

(2)

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(b) Explain how the respiratory system helps the body to recover from oxygen debt after exercise.

(3)

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**(Total for Question 11 = 7 marks)**



12 Several muscles are listed in the table below.

Abdominals	Triceps	Gastrocnemius	Gluteals
Latissimus dorsi	Pectorals	Quadriceps	Trapezius

Using the muscles in the table, match the correct muscle to the stated action in each of the following statements.

(a) Moves the thigh backward at the hip (hip extension). (1)

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(b) Moves the upper arm back and inwards towards the body. (1)

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(c) Adducts the upper arm at the shoulder. (1)

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**(Total for Question 12 = 3 marks)**

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13 The following are two training adaptations:

- muscular hypertrophy
- increased bone density

(a) Identify the method of training that is **most likely** to cause muscular hypertrophy. (1)

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(b) Identify an exercise activity that will result in an increase in bone density. (1)

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**(Total for Question 13 = 2 marks)**

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**14** Complete the following statements about hinge joints.

(a) The range of movement possible at a hinge joint is ..... (1)  
..... to .....

(b) (i) The ..... is an example of a hinge joint in the body. (1)

(ii) Give a specific sporting action where this range of movement is used at this joint. (1)

.....  
.....

**(Total for Question 14 = 3 marks)**

**15** Mr Rahman is a PE teacher. He is concerned about the health of some of his tutor group, so sets up a lunchtime table tennis club as the boys have expressed an interest in this activity.

(a) What should Mr Rahman ask his tutor group to complete in order to check that they are well enough to take part in physical activity? (1)

.....

(b) Mr Rahman believes that physical health can be improved through exercise. Explain the term "exercise". (2)

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**Figure 6** shows a table tennis player having just played a shot.



**Figure 6**

(c) Complete the table below by stating:

- when the performer would use speed and coordination
- the importance of each component for performance when playing table tennis

(4)

Component of skill-related fitness	
Speed	Use in game
	Importance
Coordination	Use in game
	Importance



(d) The 30-metre sprint fitness test is used as a test of speed.

Explain why a table tennis coach is unlikely to use this test to measure his players' speeds.

(3)

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**(Total for Question 15 = 10 marks)**



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**Turn over for Question 16**



\*16 Discuss the **relative** importance of agility and reaction time for performers competing in the **types** of activity shown in **Figure 7**.



**Figure 7**

**Candidates are not expected to use all the space provided.**

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**(Total for Question 16 = 6 marks)**



**\*17** Extreme body types (somatypes) are classified as endomorph, mesomorph or ectomorph.

Discuss whether an extreme mesomorph would be the ideal body type for endurance activities such as long distance running.

**Candidates are not expected to use all the space provided.**

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(Total for Question 17 = 6 marks)

**TOTAL FOR PAPER = 80 MARKS**



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**Acknowledgements**

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