

Candidate Name	Centre Number	Candidate Number
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**GCSE**

4421/01

**PHYSICAL EDUCATION**

**Unit 1**

P.M. TUESDAY, 24 May 2011

1½ hours

**Section A**

**ADDITIONAL MATERIALS**

Video tape in VHS format or DVD.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

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

When there is not sufficient space for your answer, continue the answer at the back of the booklet.

**INFORMATION FOR CANDIDATES**

The clips for Questions 1 and 2 in Section A will be shown three times.

Before the clips are shown you will have five minutes to read the questions. Two clips will be shown during which time you may answer the questions and make notes.

The clips will be shown a second time, there will be five minutes after each clip to answer the questions.

The clips will be shown for a third time and final time.

There will then be approximately seventy minutes to complete Sections A and B.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication used in your answers that involve extended writing in Section A (Q3 (b) and (c)) and Section B (Q.9, Q.11, Q.12).

For Examiner's use only		
Question	Maximum mark	Mark awarded
1	16	
2	16	
3	18	
<b>Section A Total</b>	<b>50</b>	
4	5	
5	5	
6	7	
7	4	
8	7	
9	6	
10	4	
11	6	
12	6	
<b>Section B Total</b>	<b>50</b>	
<b>Overall Total</b>		

4421/01/0001

**SECTION A**

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

**1.** Video clip of two different activities.

- (a) (i) Which **one** of the following physical fitness components does the **trampolinist** need to develop to try to improve her performance? Tick (✓) **one** box only. [1]

- Reaction time
- Speed
- Agility
- Co-ordination

- (ii) Explain your answer given in 1 (a) (i). [2]

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- (iii) Which **one** of the following physical fitness components do the **hurdlers** need to develop to try to improve their performance? Tick (✓) **one** box only. [1]

- Cardiovascular endurance
- Power
- Flexibility
- Body composition

- (iv) Explain your answer given in 1 (a) (iii). [2]

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- (b) (i) Identify a method of fitness training that could be used to help in developing performance for **either** the trampolinist **or** the hurdlers. [3]

Activity:
Method of fitness training:
<p>Give <b>two</b> reasons for your choice of method of fitness training:</p> <ul style="list-style-type: none"> <li>• ..... ..... ..... .....</li> <li>• ..... ..... ..... .....</li> </ul>

- (ii) What **training principles** should the competitors in both the activities shown in the video clip consider when developing a fitness programme? Tick (✓) **three** boxes only. [3]

- Progression
- Personality
- Overload
- Ability
- Decision making
- Diet
- Motivation
- Specificity

(c) (i) Give **two** reasons to explain why it would be important for all the competitors in the video clip to warm up. [2]

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- .....  
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(ii) Suggest **two** reasons why **monitoring fitness levels** is an essential aspect of a training programme. [2]

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**Total 16 marks**

2. Video clip of training.

(a) (i) Identify **two** of the **main** physical fitness components which could be **developed** by using the training method shown in the video clip. Tick (✓) **two** boxes only. [2]

- Power
- Muscular strength
- Muscular endurance
- Reaction time
- Flexibility
- Static balance

(ii) Explain your answers given in 2 (a) (i). [2]

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(iii) Define the **two** main physical fitness components that you identified in 2 (a) (i). [2]

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- .....

(b) (i) Identify the method of training shown in the video clip. [1]

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(ii) Explain your answer given in 2 (b) (i). [1]

.....

.....

(iii) Describe how this method of training could improve performance in your chosen sporting activity. [2]

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(c) Describe in detail the procedures for testing the **two** main physical fitness components identified in 2 (a) (i).

Name of Physical fitness component 1: ..... [2]

Name of Test: .....

Procedures: .....

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Name of Physical fitness component 2: ..... [2]

Name of Test: .....

Procedures: .....

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(d) Why would the **intensity** and **duration** of training differ for the performers in the video clip from that of a sedentary individual? [2]

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**Total 16 marks**

3. (a) Hill walking, mountain biking, surfing and sailing are activities in the Adventurous Area of Experience of the Physical Education National Curriculum.

(i) Suggest **three** reasons to explain why many school pupils do **not** participate in such activities. [3]

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- .....  
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- .....  
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(ii) Give **three** reasons why the Adventurous Area of Experience might be of benefit to an individual's health and fitness. [3]

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- .....  
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(b) Discuss the factors which have influenced **your** participation in sport/physical activity. [6]

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**SECTION B**

*Answer all the questions in the space provided.*

4. (a) **Health** can be defined as: Tick (✓) **one** box only. [1]

- The ability to meet the demands of the environment.
- The capability to carry out everyday activities without fatigue.
- A state of complete mental physical and social well-being.
- The capability of the body systems to function at optimal efficiency.

(b) **Fitness** can be defined as: Tick (✓) **one** box only. [1]

- A state of complete mental, physical and social well-being.
- The absence of illness.
- The ability to meet the physical demands of any particular sporting activity.
- The ability to meet the demands of work and play without undue fatigue.

(c) Which of the following is the important link between **Health** and **Fitness**? Tick (✓) **one** box only. [1]

- Meeting other people.
- Being injury free.
- Exercising.
- Looking good.

(d) Suggest **two** strategies which could be used to ensure **adherence** to physical activity [2]

- .....
- .....

**Total 5 marks**

**Turn over.**

5. (a) Identify **one** factor why being **overweight/obese** can affect performance in physical activity. [1]

- .....

(b) Give **one** reason why **Carbohydrate** is the major energy fuel used during vigorous exercise. [1]

- .....

(c) A lack of **water** before, during or after strenuous physical activity can cause:  
Tick (✓) **one** box only. [1]

- Anorexia
- Oxygen debt
- Hypothermia
- Dehydration

(d) What is the Energy Equation and what does it tell us regarding weight loss/gain? [2]

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**Total 5 marks**

6. (a) Name **one** factor which determines which **energy system** is used in physical activity. [1]

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(b) What is the name of the waste substance that builds up in muscles during strenuous (anaerobic) exercise? [1]

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(c) There are **three energy systems** that the body can use during physical activity:

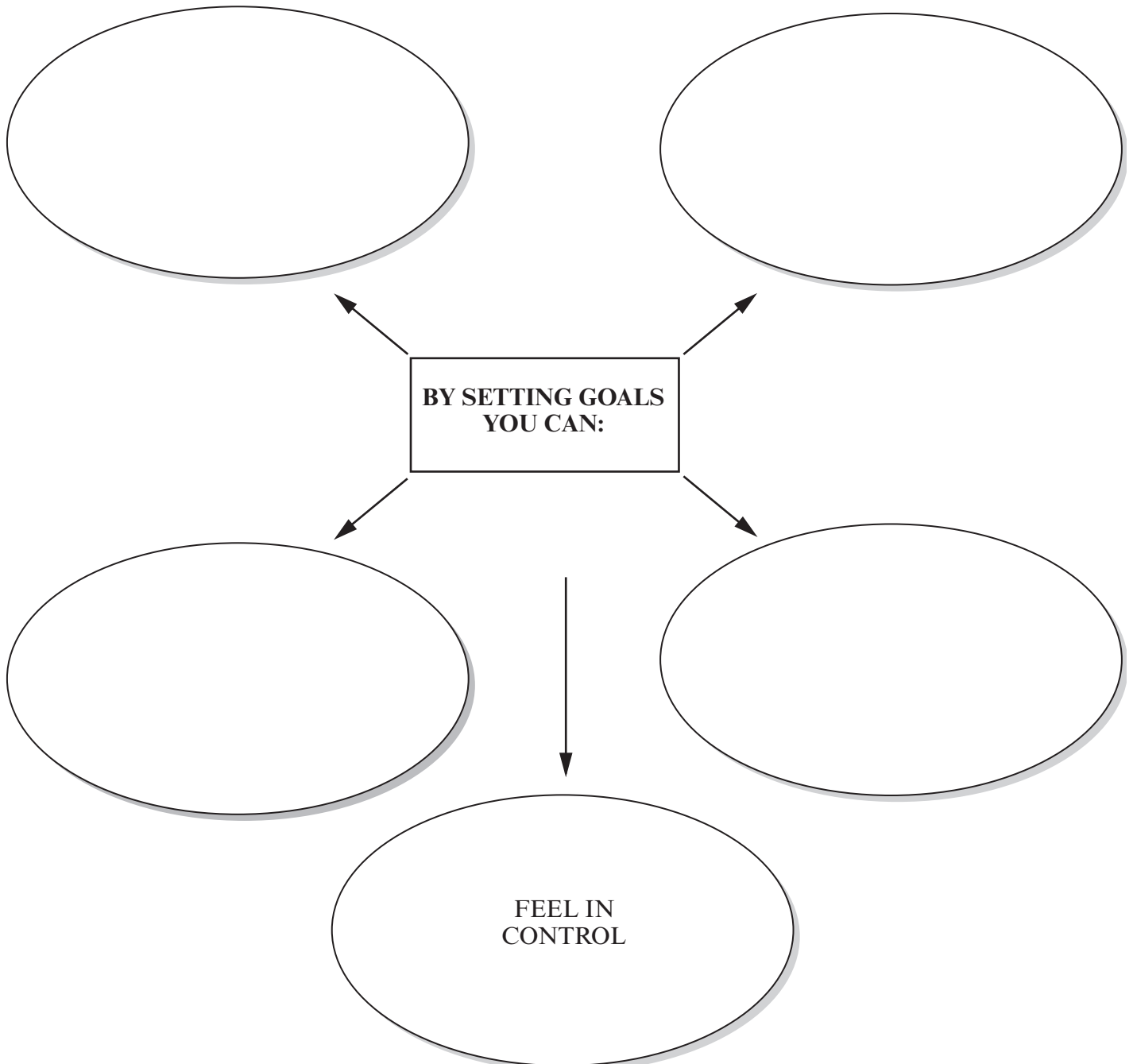
Complete the table below.

[5]

Name of ENERGY SYSTEM	Explanation using a SPORTING EXAMPLE
	<p>.....</p> <p>.....</p> <p>.....</p>
	<p>.....</p> <p>.....</p> <p>.....</p>
	<p>.....</p> <p>.....</p> <p>.....</p>

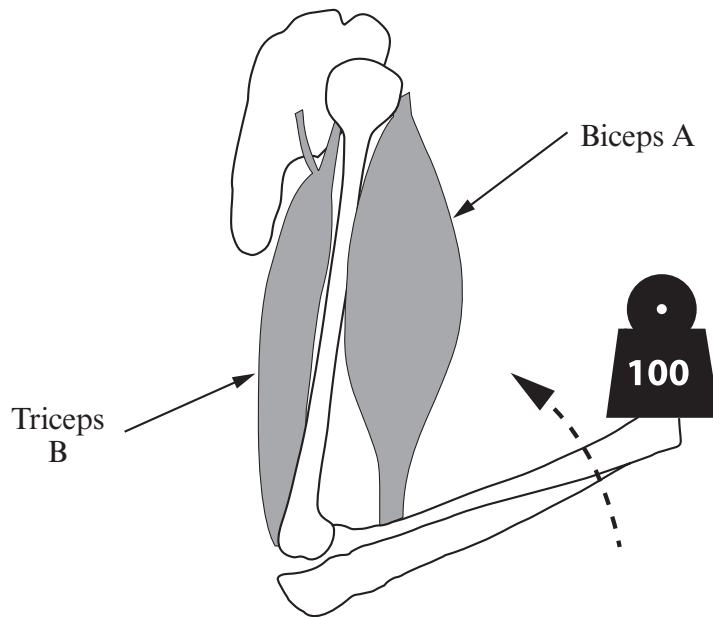
**Total 7 marks**

7. Complete the following diagram to explain how **goal - setting** can help improve sporting performance. **One** box has been filled in to help you: [4]



**Total 4 marks**

8. The diagram below shows the action of the upper arm muscle involved in lifting a weight.



- (a) What is the upward movement called? [1]  
.....
- (b) Which muscle is shortening (contracting) to cause this upward movement? [1]  
.....
- (c) If the contracting muscle is the agonist or prime mover what is the relaxing muscle called? [1]  
.....
- (d) What is the purpose of ligaments at a joint? [1]  
.....
- (e) What Type of Synovial Joint allows movement in only one plane? [1]  
.....
- (f) What Type of Synovial Joint allows the widest range of movement? [1]  
.....
- (g) Give a specific example of a sporting action that the type of Synovial Joint named in (f) allows. [1]  
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**Total 7 marks**



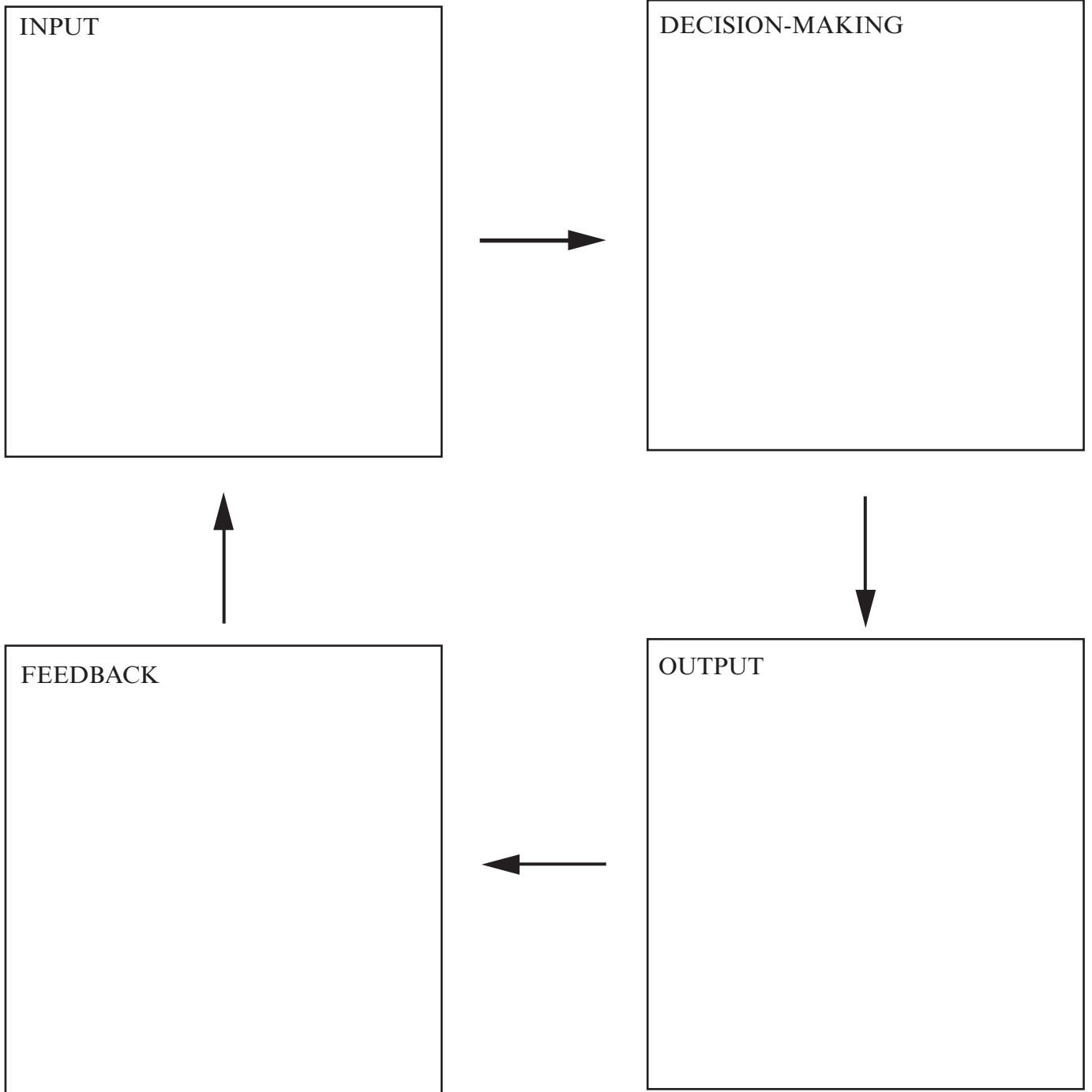


10. "When learning and playing a sport, the Information Processing System is used."

Use a sport to describe **each** of the stages of the system shown in the diagram below.

[4]

Sporting Example .....



**Total 4 marks**

**Turn over.**







A series of horizontal dotted lines for writing, spanning the width of the page.