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| Surname     | Centre Number | Candidate Number |
| Other Names |               | 0                |



**GCSE**

4421/01

**PHYSICAL EDUCATION  
UNIT 1**

P.M. FRIDAY, 16 May 2014

1 hour 30 minutes

**ADDITIONAL MATERIALS**

DVD.

**INSTRUCTIONS TO CANDIDATES**

Use black ink or black ball-point pen.  
Do not use pencil or gel pen.  
Do not use correction fluid.

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.

If you run out of space, use the continuation page at the back of the booklet, taking care to number the question(s) correctly.

**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 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 (d) and (e)) and Section B (Q.9, Q.10).

| For Examiner's use only |              |              |
|-------------------------|--------------|--------------|
| Question                | Maximum Mark | Mark Awarded |
| Section A               | 1.           | 18           |
|                         | 2.           | 14           |
|                         | 3.           | 18           |
| <b>Section A Total</b>  |              | <b>50</b>    |
| Section B               | 4.           | 4            |
|                         | 5.           | 8            |
|                         | 6.           | 9            |
|                         | 7.           | 8            |
|                         | 8.           | 9            |
|                         | 9.           | 6            |
|                         | 10.          | 6            |
| <b>Section B Total</b>  |              | <b>50</b>    |
| <b>Overall Total</b>    |              | <b>100</b>   |



**SECTION A**

*Answer all the questions in the spaces provided.*

1. Video clip of climber.

(a) Describe how each of the components of fitness below are used in the video clip. [4]

| Component of fitness     | Description of when the component is used |
|--------------------------|---|
| Flexibility              |   |
| Local Muscular endurance |   |
| Coordination             |   |
| Strength                 |   |



(b) Define each of the components of fitness in (a) and name a recognised test for each component of fitness. [8]

| Component of fitness     | Definition and test                       |
|--------------------------|---|
| Flexibility              | Definition: .....<br>.....<br>Test: ..... |
| Local Muscular endurance | Definition: .....<br>.....<br>Test: ..... |
| Coordination             | Definition: .....<br>.....<br>Test: ..... |
| Strength                 | Definition: .....<br>.....<br>Test: ..... |

(c) Explain why weight training could benefit performance in this activity. [2]

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(d) Explain why it is important for climbers to warm up correctly.

[2]

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(e) Apart from fitness testing, how could the climber **monitor** his training?

[2]

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18



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**2. Video clip of runner.**

- (a) (i) Identify the method of training demonstrated in the video clip.  
Tick (✓) **one** box only.

[1]

Circuit PNF Stretching Weight Continuous Interval 

- (ii) Identify the main component of physical fitness that could be developed from this method of training.  
Tick (✓) **one** box only.

[1]

Speed Endurance Flexibility Balance Agility 

‘When developing a training programme to improve physical fitness components, it is important to apply the principles of training.’

- (b) Using specific examples, describe how the runner could apply the following principles to a training programme. [8]

| Principles of training | Application   |
|------------------------|---|
| SPECIFICITY            | .....<br>.....<br>.....<br>.....<br>.....<br>.....<br>..... |
| PROGRESSION            | .....<br>.....<br>.....<br>.....<br>.....<br>.....<br>..... |
| OVERLOAD               | .....<br>.....<br>.....<br>.....<br>.....<br>.....<br>..... |
| VARIANCE               | .....<br>.....<br>.....<br>.....<br>.....<br>.....<br>..... |

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(c) Using specific sporting examples, complete the table below.

[4]

| Major component of fitness | Sport/Activity/ Position/Event | Description of when the component is used |
|----------------------------|--------------------------------|---|
|                            |                                | <p>.....</p> <p>.....</p> <p>.....</p>    |
|                            |                                | <p>.....</p> <p>.....</p> <p>.....</p>    |

14





3. (a) Identify a reason why companies want to sponsor individual athletes. [1]  
Tick (✓) **one** box only.

- Talent identification
- Advertising
- Develop sport
- Increase participation

(b) Give **two** ways by which a local sports club could be funded. [2]

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(c) Explain how local leisure centres can increase participation rates of children. [3]

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

A series of horizontal dotted lines for writing.



(e) Discuss the risks associated with a sedentary lifestyle.

[6]

Dotted lines for writing the answer.

18



**SECTION B**

*Answer all the questions in the spaces provided.*

4. (a) Which of the following is the definition of STROKE VOLUME?  
Tick (✓) **one** box only. [1]

The amount of blood pumped out of the heart in one minute.

The pressure of blood flow on the arteries.

The re-distribution of blood in the body when exercising

The amount of blood which the heart can pump with each beat.

- (b) What advantage is there for a sports person in improving his/her stroke volume? [1]

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- (c) Which of the following is the definition of CARDIAC OUTPUT?  
Tick (✓) **one** box only. [1]

The amount of blood which the heart can pump with each beat.

The pressure of blood flow on the arteries.

The amount of blood pumped out of the heart in one minute.

The re-distribution of blood in the body when exercising.

- (d) Explain what happens to cardiac output during exercise. [1]

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5. (a) The table below shows the heart rate of three 16 year old athletes before and after exercise, running at the same speed and for the same duration on a treadmill.

|   | Resting Heart Rate | Heart Rate Straight After Exercise | Heart Rate 1 Minute After Exercising |
|---|--------------------|------------------------------------|--------------------------------------|
| A | 60                 | 110                                | 65                                   |
| B | 70                 | 185                                | 130                                  |
| C | 70                 | 150                                | 80                                   |

(i) Tick (✓) the box to suggest who is the fittest. [1]

A

B

C

(ii) Explain your answer to 5(a)(i). [2]

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(b) Suggest **two** ways in which a high level of physical fitness could improve a sportsperson's performance. [2]

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

(c) Which ENERGY SYSTEM would a 400 metre SPRINTER mainly use? [1]

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(d) What causes FATIGUE during high intensity exercise? [2]

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6. (a) **LIGAMENTS, CARTILAGE AND TENDONS** help in providing efficient movement during physical activity.

Draw a line to link each term to the correct function. Each term should be linked to **one** function only. [3]

| TERM      | FUNCTION   |
|-----------|--|
| LIGAMENTS | Provide protection for bone ends: shock absorption |
| CARTILAGE | Join muscles to bone                               |
| TENDONS   | Join bone to bone                                  |

- (b) (i) Which type of synovial joint allows **FLEXION/EXTENSION** only? [1]

- (ii) Give an example of where this type of joint can be found in the body. [1]

- (iii) Give a sporting example of the movement allowed by this type of joint. [1]

- (c) (i) Name **one** type of synovial joint which allows **ROTATION**. [1]

- (ii) Give an example of where the type of joint named in (c)(i) can be found in the body. [1]

- (iii) Give a sporting example of the movement allowed by the type of joint named in (c)(i). [1]



7. (a) Explain why a balanced DIET is important for all sportspersons. [2]

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(b) Give **two** reasons to explain why being obese could affect sporting performance. [2]

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

(c) Explain the term ENERGY BALANCE. [2]

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(d) Why is fluid intake an important consideration for a sportsperson? [2]

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8. (a) 'GUIDANCE is important when learning a new skill.'
- (i) Why can VERBAL GUIDANCE be of limited use on its own? [1]
- .....
- .....
- (ii) For which level of performer is VISUAL GUIDANCE particularly suitable for learning a new skill? [1]
- .....
- .....
- (iii) When might MANUAL/MECHANICAL GUIDANCE be best used? [1]
- .....
- .....
- (b) Explain how motivation can affect the development of a skill or performance. [2]
- .....
- .....
- .....
- (c) Name **two** factors which could affect EXERCISE ADHERENCE and MOTIVATION in sport.
- ..... [1]
  - ..... [1]
- (d) Explain why FEEDBACK is best when both **Knowledge of Performance** and **Knowledge of Results** are given by the teacher/coach. [2]
- .....
- .....
- .....
- .....









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| Question<br>number | <b>Additional page, if required.</b><br><b>Write the question number(s) in the left-hand margin.</b> |
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|                    |  |

