



CANDIDATE
NAME

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CENTRE
NUMBER

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CANDIDATE
NUMBER

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0413/13

October/November 2021

1 hour 45 minutes

You must answer on the question paper.

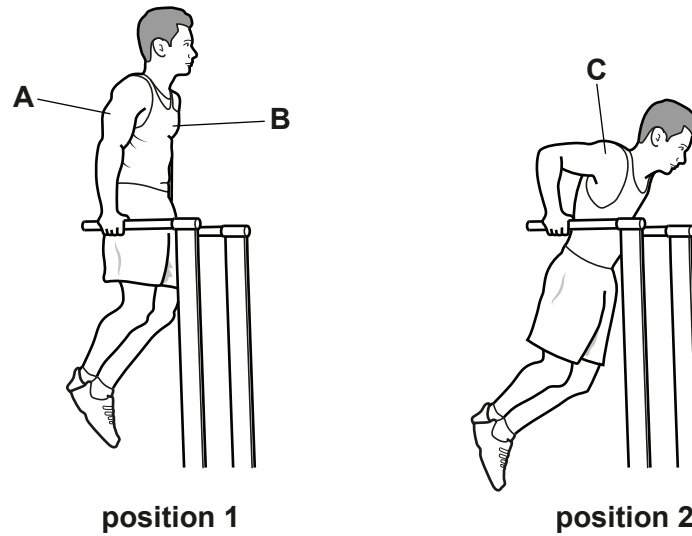
No additional materials are needed.

- Answer **all** questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do **not** use an erasable pen or correction fluid.
- Do **not** write on any bar codes.
- You may use a calculator.
- You should show all your working and use appropriate units.

- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [].

This document has **16** pages.

- 1 The diagrams show a performer carrying out an exercise.



- (a) Identify the muscles labelled **A**, **B** and **C** in the diagrams.

muscle **A**

muscle **B**

muscle **C**

[3]

- (b) State the type of movement occurring at the elbow joint from:

position 1 to position 2

.....

position 2 to position 1.

.....

[2]

- (c) Identify and describe the type of isotonic muscle contraction occurring at muscle **A** when moving from:

position 1 to position 2

type of isotonic muscle contraction

description

.....

position 2 to position 1.

type of isotonic muscle contraction

description

.....

[4]

[Total: 9]

2 Plyometric training is one method that a performer could use as part of their training programme.

- (a)** Identify the main component of fitness this method of training is designed to improve. Describe an example of when this component of fitness is used in a named physical activity.

component of fitness

physical activity

example

.....

[2]

- (b)** Flexibility is another important component of fitness.

Describe how a named test of flexibility is carried out.

name of test

description

.....

.....

.....

.....

.....

.....

.....

[4]

(c) Specificity, overload and tedium are principles of training.

(i) Identify **two** other principles of training.

1

2

[2]

(ii) Explain, using examples, how the following principles of training could be applied to a training programme in a named physical activity.

physical activity

specificity

.....

.....

.....

overload

.....

.....

.....

tedium

.....

.....

.....

[3]

[Total: 11]

3 (a) (i) Define the following:

heart rate

.....

stroke volume.

.....

[2]

(ii) Describe how to calculate cardiac output using heart rate and stroke volume.

.....

..... [1]

(b) The table shows resting values of pulse rate and stroke volume for two performers.

	resting pulse rate	resting stroke volume
performer A	75 beats per minute	70 millilitres
performer B	50 beats per minute	105 millilitres

Suggest possible reasons for the differences in pulse rate and stroke volume between performer **A** and performer **B**.

.....

.....

.....

..... [2]

(c) Describe **two** short-term effects of exercise on the circulatory system.

1

2

[2]

[Total: 7]

- 4 (a) Define reaction time.

.....
 [1]

- (b) Explain, using different examples from **two** different named physical activities, why reaction time is important for a performer.

physical activity 1

explanation

.....

physical activity 2

explanation

.....

[2]

[Total: 3]

- 5 (a) Mental well-being is one part of the World Health Organization's definition of health.

Identify **one** other part of the definition.

..... [1]

- (b) Describe how participating in physical activity can benefit a person's mental health and well-being.

.....

.....

.....

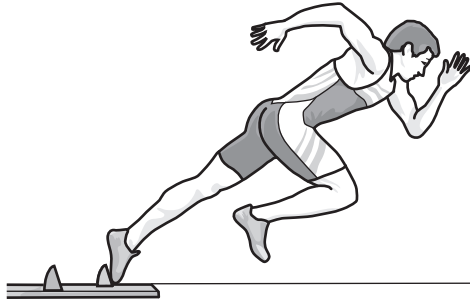
.....

.....

..... [3]

[Total: 4]

6 The diagram shows a sprinter leaving the blocks.



(a) Identify **three** forces acting on the sprinter leaving the blocks.

1

2

3

[3]

(b) Sketch and label a simple diagram of the class of lever acting at the ankle as the sprinter pushes off the blocks.
Identify the class of lever.

diagram

class of lever

[3]

[Total: 6]

7 High-altitude training is a method of training sometimes used by performers.

(a) Suggest why performers may use high-altitude training.

.....

.....

.....

.....

.....

..... [3]

(b) Suggest **three** disadvantages of high-altitude training for a performer.

1

.....

2

.....

3

.....

[3]

[Total: 6]

- 8 Describe, using examples from a named physical activity, how **three** named principles of SMARTER goal setting might be used by a coach to improve an individual's performance.

physical activity

principle 1

example of use

.....

principle 2

example of use

.....

principle 3

example of use

.....

[6]

- 9 (a) Describe what is meant by motivation.

.....

..... [1]

- (b) Give examples of **two** named types of motivation.

type of motivation 1

example

.....

type of motivation 2

example

.....

[4]

[Total: 5]

10 (a) Identify **three** physiological responses to overarousal.

1

2

3

[3]

(b) Explain, using different examples from a named games activity, how each of the following levels of arousal may affect performance.

games activity

underarousal

.....

.....

.....

optimal arousal

.....

.....

.....

overarousal

.....

.....

.....

[3]

(c) Identify **two** types of anxiety.

1

2

[2]

[Total: 8]

11 Describe different positive and negative effects that media coverage can have on sport.

.....

.....

.....

.....

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.....

.....

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.....

.....

.....

.....

..... [6]

- 12 (a) Reduced levels of health-related and skill-related fitness are reasons why elderly people may choose to participate in different activities than those chosen by young adults.

Explain **two** other reasons.

1

.....

2

.....

[2]

- (b) Describe what is meant by the term *play*.

.....

.....

.....

..... [2]

- (c) Suggest how education in schools may prepare children to participate in physical activity.

.....

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.....

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..... [4]

[Total: 8]

- 13** For some athletes the pressure to perform at the highest level may mean that they take prohibited performance-enhancing drugs (PEDs), which affect the body in different ways.

(a) Complete the table to identify the missing types of prohibited PED and describe a benefit of each type of prohibited PED for performance in a named physical activity.

type of prohibited PED	effect on the body	benefit for performance in a named physical activity
anabolic steroids	increase muscle mass	able to push harder to win a scrum in rugby
	weight loss	
	increase alertness	
	reduce anxiety	

[6]

(b) Health implications are one disadvantage of prohibited PEDs.

Identify **two** other disadvantages of prohibited PEDs.

1

2

[2]

(c) Suggest different ways that organising bodies, such as the World Anti-Doping Agency (WADA), attempt to prevent and reduce the use of PEDs.

.....

.....

.....

..... [2]

[Total: 10]

- 14** Many people want their nation to host a global sporting event.

Suggest some of the advantages of being the host nation.

.....

.....

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.....

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.....

.....

.....

.....

..... [5]

15 Energy can be released through aerobic respiration and through anaerobic respiration.

(a) Describe **two** differences between aerobic respiration and anaerobic respiration.

1

.....

2

.....

[2]

(b) Describe a situation in **two** different named physical activities where a performer mainly uses each of the following ways of releasing energy. Justify each of your answers.

aerobic

physical activity 1

situation 1

.....

justification

.....

anaerobic

physical activity 2

situation 2

.....

justification

.....

[4]

[Total: 6]

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