Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

2477659227

PHYSICAL EDUCATION **0413/13**

Paper 1 Theory **October/November 2021**

1 hour 45 minutes

You must answer on the question paper.

No additional materials are needed.

INSTRUCTIONS

- 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.

INFORMATION

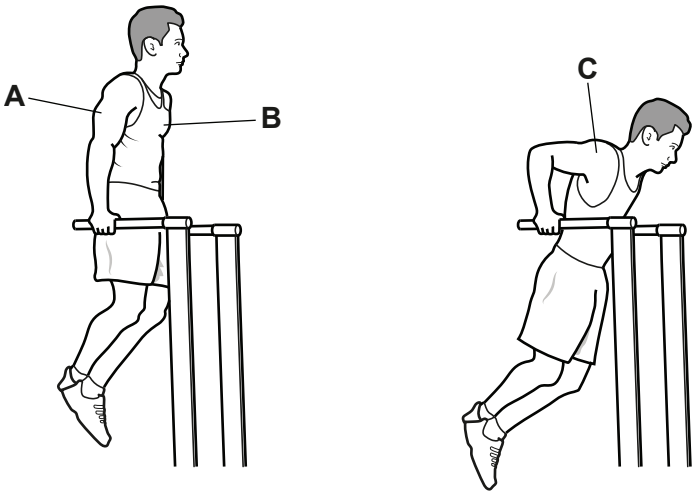
- The total mark for this paper is 100.
- The number of marks for each question or part question is shown in brackets [ ].

This document has **16** pages.

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[Turn over

1 The diagrams show a performer carrying out an exercise.



position 1 **position 2**

(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]

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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.

.....

.....

.....

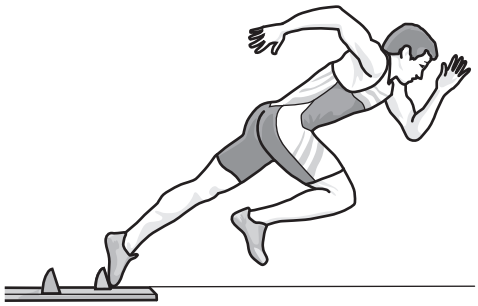
.....

.....

..... [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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.....

.....

.....

.....

..... [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.

.....

.....

.....

.....

.....

.....

.....

..... [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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.....

.....

.....

.....

..... [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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