Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER			

2396789610

PHYSICAL EDUCATION **0413/12**

Paper 1 Theory **October/November 2023**

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. Any blank pages are indicated.

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1 **(a)** Circle the characteristic that is **not** a characteristic of the alveoli.

large surface area **moist** **thick walls** [1]

(b) Which letter, **A**, **B** or **C**, correctly shows the pathway of air into the lungs?

A trachea → mouth/nasal passage → bronchioles → bronchi

B mouth/nasal passage → bronchi → trachea → bronchioles

C mouth/nasal passage → trachea → bronchi → bronchioles

..... [1]

(c) State where gaseous exchange takes place in the lungs.

..... [1]

(d) Circle the muscles which are located between the ribs.

gluteals **intercostals** **pectorals** [1]

(e) **(i)** Describe each of the following:

tidal volume .....

.....

residual volume .....

.....

vital capacity. .....

.....

[3]

(ii) Explain how minute ventilation is affected when exercise begins.

.....

.....

.....

..... [2]

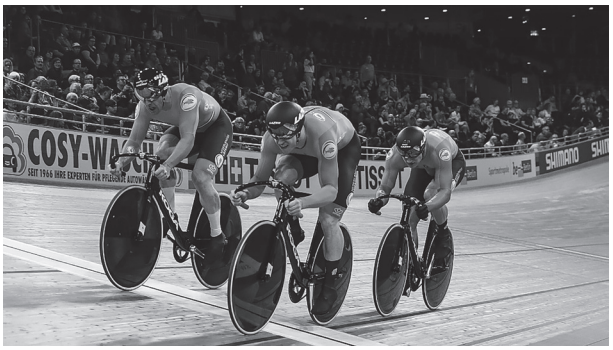
[Total: 9]

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2 The photographs show performers in different cycling races.



road racing



track racing

Road racing often includes hills and covers long distances. Track racing often takes place indoors and covers shorter distances.

(a) For each type of racing, explain different ways the following components of fitness may benefit a performer.

road racing

balance .....

.....

muscular endurance .....

.....

track racing

power .....

.....

reaction time .....

.....

[4]

(b) Gravity is a force that keeps a cyclist and their bicycle in contact with the ground.

Explain how **two** other named forces affect a cyclist during a race.

force 1 .....

explanation .....

.....

force 2 .....

explanation .....

.....

[4]

(c) Suggest **three** different ways that developments in technology may increase the speed of a cyclist.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(d) Blood doping is an illegal method that has been used in cycling to enhance performance.

(i) Describe how blood doping is carried out.

.....

.....

.....

.....

.....

..... [3]

(ii) Explain how blood doping may enhance the performance of a cyclist.

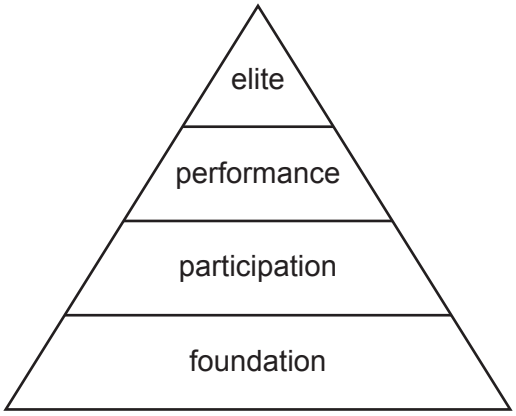
.....

..... [1]

[Total: 15]

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3 The diagram shows the sports development pyramid.



Describe **three** characteristics of performers in each of the following levels of the sports development pyramid:

foundation

1 .....

2 .....

3 .....

performance.

1 .....

2 .....

3 .....

[6]

4 Television is one type of media coverage.

Describe different ways that **three** other named types of media coverage can enhance the experience of sport for spectators.

type of media coverage 1 .....

description .....

.....

type of media coverage 2 .....

description .....

.....

type of media coverage 3 .....

description .....

.....

[6]

5 Photograph **A** shows cross-country runners and photograph **B** shows footballers.

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A **B**

(a) Weight training can be used by cross-country runners and footballers.

(i) Describe how weight training may improve performance for each of the following:

a cross-country runner .....

.....

a footballer. .....

.....

[2]

(ii) Other than weight training, identify a method of training that can be used by cross-country runners and footballers.

..... [1]

(b) (i) Identify the main type of respiration being used by a performer in each of the following situations. Justify your answers.

a cross-country runner keeping a steady pace for the first 3000 metres of the race

type of respiration .....

justification .....

.....

a footballer jumping to head the ball

type of respiration .....

justification .....

.....
[4]

(ii) The equations show how energy is released during respiration.

glucose + oxygen $\rightarrow$ water + **X**

glucose $\rightarrow$ **Y**

Identify substance **X** and substance **Y**.

X .....

Y .....
[2]

[Total: 9]

6 The Multi-Stage Fitness Test is often used to measure a performer's cardiovascular endurance.

(a) Describe how the Multi-Stage Fitness Test is carried out.

.....

.....

.....

.....

.....

..... [3]

(b) Other than effects on the respiratory system, describe **four** physiological effects that a performer may experience during the Multi-Stage Fitness Test.

1 .....

2 .....

3 .....

4 .....

[4]

(c) The table shows some results for a Multi-Stage Fitness Test.

letter of runner	male	letter of runner	female
A	level 11 shuttle 4	**F**	level 8 shuttle 3
B	level 10 shuttle 2	**G**	level 8 shuttle 3
C	level 14 shuttle 3	**H**	level 6 shuttle 1
D	level 4 shuttle 5	**I**	level 6 shuttle 6
E	level 10 shuttle 1	**J**	level 11 shuttle 1

(i) Using the table, identify the letter of the runner with the highest cardiovascular endurance.

..... [1]

(ii) Explain how **two** different types of motivation may influence the results of the Multi-Stage Fitness Test.

type of motivation 1 .....

explanation .....

.....

type of motivation 2 .....

explanation .....

.....
[4]

[Total: 12]

7 The photographs show performers with different skill levels in tennis.

Performer **A** has a very high skill level. Performer **B** has a very low skill level.



performer **A**



performer **B**

(a) Other than motivation, identify **four** factors that can cause differences in skill level.

1 .....

2 .....

3 .....

4 .....

[4]

(b) (i) Identify which stage of learning each performer is in.

performer **A** .....

performer **B** .....
[2]

(ii) For each performer, suggest a different type of feedback that would be most beneficial. Justify your answers.

performer **A**

type of feedback 1 .....

justification .....

.....

performer **B**

type of feedback 2 .....

justification .....

.....
[4]

(c) Using examples from tennis, describe **three** named characteristics of a skilled performance.

characteristic 1 .....

example .....

.....

.....

characteristic 2 .....

example .....

.....

.....

characteristic 3 .....

example .....

.....

.....
[6]

[Total: 16]

8 Being the host nation for a global sporting event has many advantages.

(a) Identify **one** global sporting event.

..... [1]

(b) Explain the advantages for a nation of hosting a global sporting event.

.....

.....

.....

.....

.....

.....

.....

..... [4]

[Total: 5]

9 For each physical activity, complete the table to show different types of injury and a different description of the cause of the injury.

physical activity	type of injury	description of the cause of the injury
volleyball		landing badly on ankle after performing a block
hockey	bruise	
rugby union	winding	
rock climbing		scraping skin on the rock
cross-country running	blister	

[5]

10 **(a)** Other than muscle attachment for movement, identify **three** functions of the skeleton.

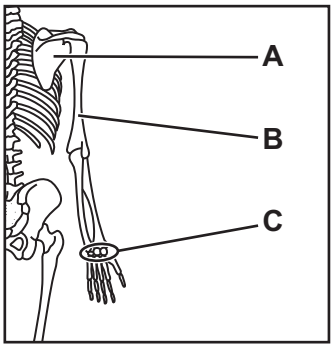
1 .....

2 .....

3 .....

[3]

(b) The diagram shows part of a skeleton.



State the name and classification of the bones at **A**, **B** and **C**.

A .....

classification .....

B .....

classification .....

C .....

classification .....

[6]

(c) Within the body there are three main types of joint.

State a different name for each of the following types of joint:

fixed .....

slightly movable .....

freely movable. .....

[3]

[Total: 12]

11 **(a)** Describe the function of the right ventricle in the heart.

.....

..... [1]

(b) Complete the table to show different components of blood and their functions.

component	function
plasma	
	carry oxygen
white blood cells	
	clot the blood

[4]

[Total: 5]

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