Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

2708312479

PHYSICAL EDUCATION **0413/12**

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. Any blank pages are indicated.

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1 Identify **two** components of a lever.

1 .....

2 .....
[2]

2 The diagram shows rugby players who require agility as a component of fitness.

(a) Identify **four** components of fitness, other than agility, required by rugby players. Justify each choice of component using different examples from rugby.

component 1 .....

justification .....

.....

component 2 .....

justification .....

.....

component 3 .....

justification .....

.....

component 4 .....

justification .....

.....
[4]

(b) Describe how to carry out a named fitness test for agility.

test .....

description .....

.....

.....

.....

.....

.....

.....

.....

[4]

(c) Some rugby players may use plyometric training.

(i) Describe **two** examples of plyometric training exercises.

1 .....

.....

.....

.....

2 .....

.....

.....

.....

[2]

(ii) Describe **two** disadvantages of plyometric training.

1 .....

.....

2 .....

.....

[2]

(d) Overload and tedium are two principles of training.

Explain how **two** other named principles of training can be applied to a training programme.

principle 1 .....

explanation .....

.....

principle 2 .....

explanation .....

.....

[4]

[Total: 16]

3 The photograph shows a group learning to ski on an outdoor artificial ski slope.

Describe **three** different real risks when using an outdoor artificial ski slope. Suggest a different strategy to reduce each real risk.

real risk 1 .....

.....

strategy 1 .....

.....

real risk 2 .....

.....

strategy 2 .....

.....

real risk 3 .....

.....

strategy 3 .....

.....

[6]

4 **(a)** Describe **three** short-term effects of exercise.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(b) **(i)** Describe the long-term effects of exercise on resting pulse rate and stroke volume.

resting pulse rate .....

.....

stroke volume .....

.....

[2]

(ii) The table shows the heart rate and the stroke volume of a performer.

heart rate / beats per minute	stroke volume / millilitres
70	72

Calculate the cardiac output of the performer. State the unit of your answer.

answer .....

unit .....

[2]

(c) **(i)** Describe **two** structural differences between arteries and veins.

1 .....

.....

2 .....

.....
[2]

(ii) Describe the structure and function of capillaries.

structure .....

.....

function .....

.....
[2]

[Total: 11]

5 **(a)** Identify a physical activity where performers may benefit from high-altitude training. Justify your answer.

physical activity .....

justification .....

.....
[1]

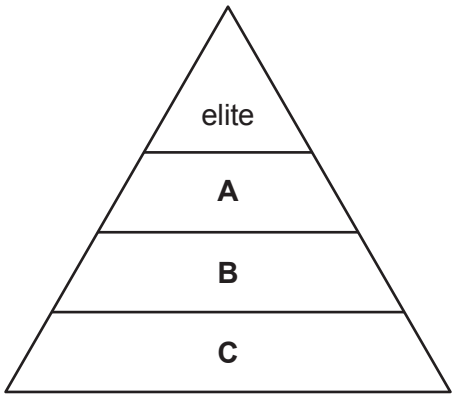
(b) Describe an expected change for a named component of blood as a result of a period of high-altitude training.

component of blood .....

expected change .....
[2]

[Total: 3]

6 **(a)** The diagram shows the sports development pyramid.



Identify the levels of the sports development pyramid labelled **A**, **B** and **C**.
Describe a characteristic of each of these levels.

A .....

description of characteristic .....

.....

B .....

description of characteristic .....

.....

C .....

description of characteristic .....

.....
[6]

(b) Describe **three** characteristics of the elite level of the sports development pyramid.

1 .....

.....

2 .....

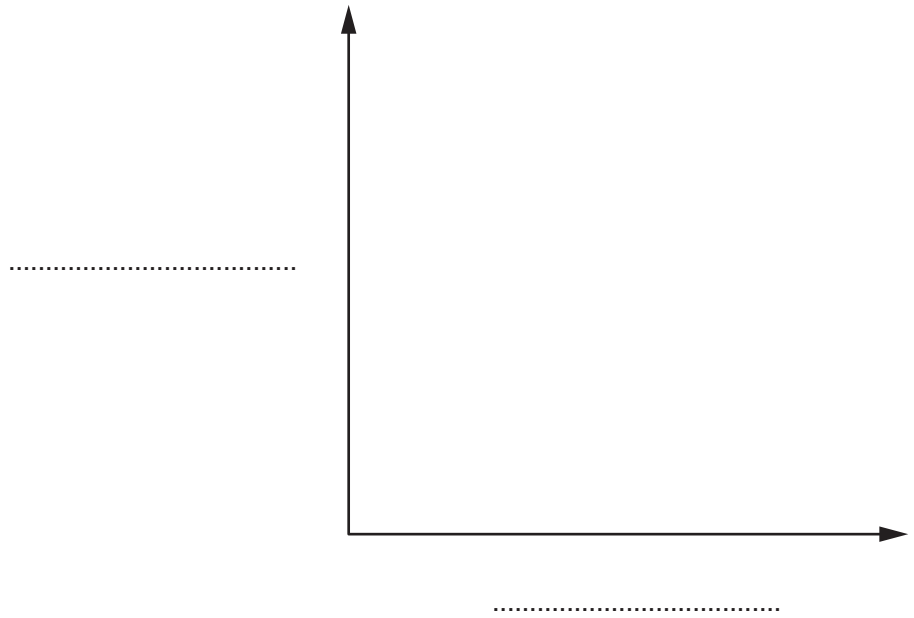
.....

3 .....

.....
[3]

[Total: 9]

7 **(a)** **(i)** Sketch a diagram of the Inverted-U theory (Yerkes–Dodson law). Label the **two** axes.



[3]

(ii) Place the letters **A**, **B** and **C** on your sketch to identify the following:

A overarousal
B underarousal
C optimal arousal.

[3]

(iii) Explain, using different examples from a named physical activity, how each of the following may affect performance.

physical activity .....

overarousal .....

.....

underarousal .....

.....

[2]

(b) Describe possible causes of anxiety when performing in a named physical activity.

physical activity .....

.....

.....

.....

..... [2]

[Total: 10]

8 **(a)** Describe **two** named breathing volumes.

breathing volume 1 .....

description .....

.....

breathing volume 2 .....

description .....

.....

[4]

(b) Explain how **two** characteristics of the alveoli enable gaseous exchange.

characteristic 1 .....

explanation .....

.....

characteristic 2 .....

explanation .....

.....

[4]

[Total: 8]

9 An amateur performer and a professional performer are preparing to compete at the Olympic Games.

(a) Suggest how their preparation may differ.

.....

.....

.....

.....

.....

..... [3]

(b) Suggest why there has been an increase in the blurring between professional status and amateur status of performers in sport.

.....

.....

.....

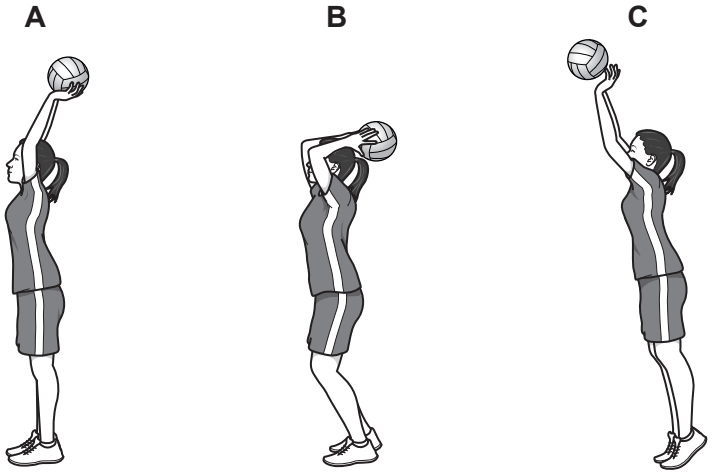
.....

.....

..... [2]

[Total: 5]

10 **(a)** The diagrams show three phases of shooting in netball.



(i) Identify the type of movement that takes place at the elbow from **A** to **B**.

..... [1]

(ii) Identify the type of movement at the elbow from **B** to **C**. Explain the antagonistic muscle action that causes this movement.

type of movement .....

explanation .....

.....

.....

.....
[3]

(b) **(i)** Identify the type of synovial joint at:

the elbow .....

the shoulder. .....
[2]

(ii) Compare the range of movement and stability of the elbow joint with the range of movement and stability of the shoulder joint.

range of movement .....

.....

stability .....

.....
[2]

(c) A graze is a common injury in netball.

Suggest a possible cause of a graze. Describe a suitable treatment for the graze.

cause .....

.....

treatment .....

.....
[2]

[Total: 10]

11 **(a)** Define fitness.

.....

..... [1]

(b) Describe requirements for good social health and well-being.

.....

.....

.....

.....

.....

..... [3]

[Total: 4]

12 **(a)** Complete the table for the **two** different types of isotonic muscle contraction.

name of type of isotonic muscle contraction		
description of type of isotonic muscle contraction		muscle lengthens while contracting
example including named muscle	the biceps contracting when flexing the elbow	

[4]

(b) The photograph shows a performer holding a position in gymnastics.

Identify the type of muscle contraction that allows the performer to hold this position. Describe this type of muscle contraction.

type of muscle contraction .....

description .....

.....

[2]

[Total: 6]

13 **(a)** Give different reasons why each of the following types of feedback are important for a performer at the cognitive stage of learning:

extrinsic feedback .....

.....

knowledge of results. .....

.....
[2]

(b) Describe, using examples from a named physical activity, how **two** named types of guidance could be given to a performer at the cognitive stage of learning.

physical activity .....

type of guidance 1 .....

example .....

.....

type of guidance 2 .....

example .....

.....
[4]

[Total: 6]

14 Describe strategies to increase participation of female performers.

.....

.....

.....

.....

.....

.....

.....

..... [4]

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