Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME									
CENTRE NUMBER						CANDIDATE NUMBER				

9917157871 4

PHYSICAL EDUCATION **0413/12**

Paper 1 Theory **October/November 2022**

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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[Turn over

1 Identify **three** functions of the skeleton.

1 .....

2 .....

3 .....
[3]

2 **(a)** **(i)** Describe differences between arteries and veins in terms of their structure and function.

.....

.....

.....

.....

.....

.....

.....

..... [4]

(ii) Describe how red blood cells carry oxygen.

.....

..... [1]

(b) Describe each of the following:

cardiac output .....

.....

stroke volume .....

.....

heart rate. .....

.....
[3]

[Total: 8]

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3 **(a)** The Multi-Stage Fitness Test is often used to predict the VO_2 max of a performer.

(i) Describe VO_2 max.

.....

.....

.....

..... [2]

(ii) Suggest why cross-country running requires a high VO_2 max.

.....

..... [1]

(iii) Gender is one factor that can affect VO_2 max.

Describe how **two** other named factors can affect a performer's VO_2 max.

factor 1 .....

description .....

.....

factor 2 .....

description .....

.....

[4]

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

.....

.....

.....

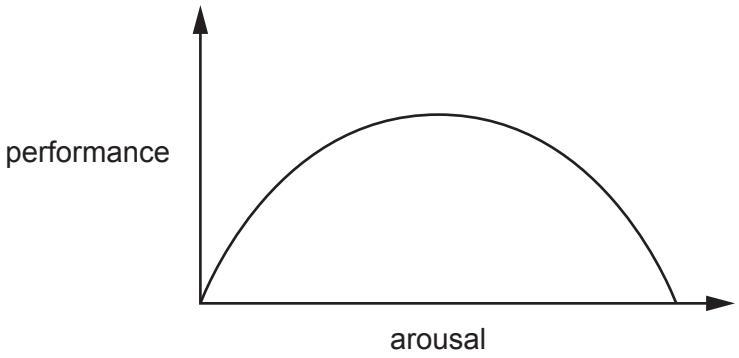
.....

.....

..... [3]

[Total: 10]

4 **(a)** The diagram shows the inverted-U theory.



(i) Label the inverted-U line using the letters **A**, **B** and **C** to identify the following:

A optimal arousal

B overarousal

C underarousal.

[3]

(ii) Using different examples from a named physical activity, explain how each of the following may affect performance.

physical activity .....

optimal arousal .....

.....

overarousal .....

.....

underarousal .....

.....

[3]

(b) Visualisation is one relaxation technique that a performer can use to control their level of arousal before a competition.

(i) State the name of **one** other relaxation technique.

..... [1]

(ii) Suggest **one** physiological effect and **one** psychological effect of using relaxation techniques.

physiological effect .....

.....

psychological effect .....

.....

[2]

[Total: 9]

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5 The photographs show performers playing cricket.





Agility is one component of fitness that is required by a performer in a game of cricket.

(a) Explain how **three** other named components of fitness could benefit performers in a game of cricket.

component 1 .....

benefit .....

.....

component 2 .....

benefit .....

.....

component 3 .....

benefit .....

.....

[6]

(b) State the name of a recognised fitness test to measure agility.

..... [1]

[Total: 7]

6 **(a)** Circuit training is a method of training.

(i) Suggest **one** advantage and **one** disadvantage of circuit training.

advantage .....

.....

disadvantage .....

.....

[2]

(ii) Describe a named method of training other than circuit training.

method of training .....

description .....

.....

[2]

(b) Before training, many performers will stretch as one phase of their warm up.

Describe, using examples from a named physical activity, **two** other named phases of a warm up.

physical activity .....

phase of warm up 1 .....

description .....

.....

phase of warm up 2 .....

description .....

.....

[4]

[Total: 8]

7 Describe **three** characteristics of a performer at each of the following stages of learning. Give an example of each characteristic from a named physical activity.

physical activity .....

cognitive

characteristic 1 .....

example .....

.....

characteristic 2 .....

example .....

.....

characteristic 3 .....

example .....

.....

autonomous

characteristic 1 .....

example .....

.....

characteristic 2 .....

example .....

.....

characteristic 3 .....

example .....

.....

[6]

8 **(a)** Explain, using different examples from **one** named physical activity, how each of the following injuries can be caused.

physical activity.....

bruises

cause .....

.....

cuts/grazes

cause .....

.....

blisters

cause .....

.....

winding

cause .....

.....

[4]

(b) Ice is one part of the RICE method of treatment.

Identify the other parts of the RICE method of treatment. Describe how to carry out each part.

R .....

description .....

.....

C .....

description .....

.....

E .....

description .....

.....

[6]

[Total: 10]

9 The photograph shows a performer hitting a golf ball.



(a) Describe what is meant by force.

.....

..... [1]

(b) Identify **three** forces acting on the golf ball as it is hit and moves through the air. Explain how each force affects the flight of the ball.

force 1 .....

explanation .....

.....

force 2 .....

explanation .....

.....

force 3 .....

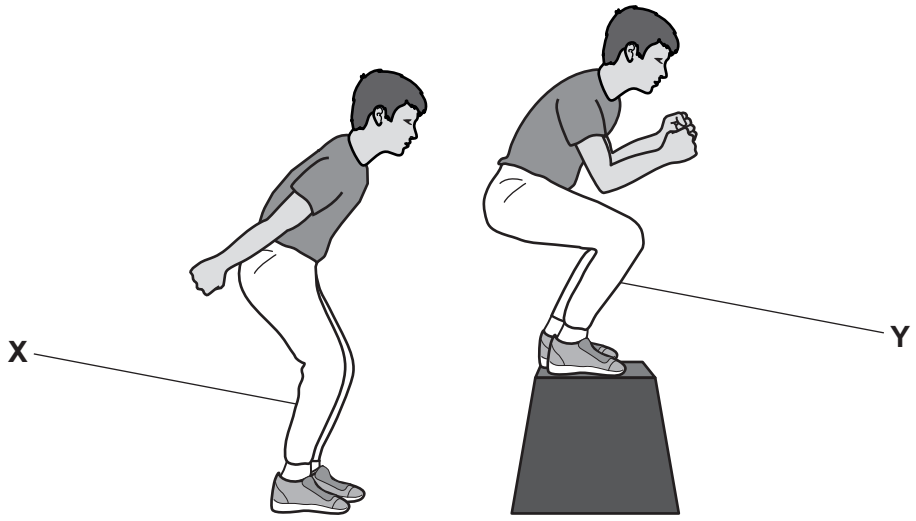
explanation .....

.....

[6]

[Total: 7]

10 The diagram shows a 100-metre sprinter training by jumping onto a box. They move from position **A** to position **B**.



(a) Identify the muscles located at **X** and **Y**.

X .....

Y .....

[2]

(b) State the name of the type of isotonic muscle contraction occurring in the muscle located at **X** as the 100-metre sprinter moves from position **A** to position **B**.

..... [1]

(c) Identify the main muscle fibre type used when jumping onto a box. Explain how characteristics of this muscle fibre type may affect the performance of a 100-metre sprinter.

muscle fibre type .....

explanation .....

.....

.....

.....

[3]

[Total: 6]

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11 Describe, using a different example for each, how technology in sport has benefited:

performers .....

.....

spectators .....

.....

officials. .....

.....

[3]

12 Describe the advantages for a nation of hosting a major global sporting event.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [6]

13 Other than gradually decreasing pulse rate, suggest physiological reasons for using gentle jogging as part of a cool down.

.....

.....

.....

..... [2]

14 Aerobic respiration and anaerobic respiration are two processes used to release energy in the body.

(a) Outline how energy is released in each of these processes:

aerobic respiration .....

.....

.....

.....

anaerobic respiration. .....

.....

.....

.....

[4]

(b) Describe, using examples from a named physical activity, when a performer might use each of the following processes. Justify each of your answers.

physical activity .....

aerobic respiration

example .....

.....

justification .....

.....

anaerobic respiration

example .....

.....

justification .....

.....

[2]

[Total: 6]

15 A performer wants to improve their health and well-being by taking part in a physical activity during their leisure time.

Explain how **three** named factors may influence the performer's choice of physical activity.

factor 1 .....

explanation .....

.....

factor 2 .....

explanation .....

.....

factor 3 .....

explanation .....

.....

[6]

16 Describe how each of the following stages of a simple information-processing model can be used by a performer when passing a ball in a games activity:

input .....

.....

decision making .....

.....

feedback. .....

.....

[3]

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