Cambridge Assessment International Education

Cambridge IGCSE™

CANDIDATE NAME	

CENTRE NUMBER						CANDIDATE NUMBER				

6321947196

PHYSICAL EDUCATION **0413/11**

Paper 1 Theory **May/June 2020**

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 **20** pages. Blank pages are indicated.

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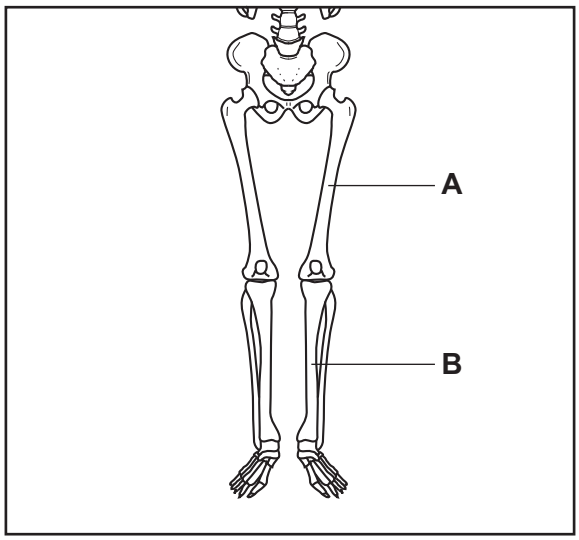
1 The diagram shows part of a human skeleton.



Name the bones labelled **A** and **B**.

A .....

B .....
[2]

2 The table shows a training session for a performer who completes the same session twice a week.

training session stages
warm up
1. sprint for 10 seconds on flat terrain
2. jog for 1 minute on flat terrain
3. sprint for 10 seconds uphill
4. walk downhill for 1 minute
5. jog slowly for 1 minute
repeat stages 1. to 5. five times
cool down

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(a) **(i)** State which **one** of the following methods of training is demonstrated in the table.

plyometric training **fartlek training** **weight training** **continuous training**

..... [1]

(ii) Describe advantages of this method of training for the performer.

.....

.....

.....

.....

.....

..... [3]

(b) Describe the physiological reasons for a warm up.

.....

.....

.....

.....

.....

..... [3]

(c) Explain how **three** of the FITT principles of overload could be applied to the next training session of this performer.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

[Total: 10]

3 **(a)** Name the level of the sports development pyramid that is described by each of the following statements:

(i) a performer trains twice a week for a regional netball team led by a qualified coach

..... [1]

(ii) a performer attends taster sessions to try different sports with their friends.

..... [1]

(b) Explain how **two** factors may cause variations in the skill level of performers.

1 .....

.....

2 .....

.....
[2]

[Total: 4]

4 **(a)** Describe the role of haemoglobin in the blood.

.....

.....

.....

..... [2]

(b) Describe **one** way that the blood of a performer changes as a result of high-altitude training for a period of 3 to 4 weeks.

.....

..... [1]

(c) Complete the table to show the missing blood vessel and a description of wall thickness for an artery.

blood vessel	description of wall thickness
	walls are very thin and are one cell thick
artery	

[2]

[Total: 5]

5 Name **two** features of mental health and well-being and describe how each feature helps when participating in physical activity.

feature 1 .....

description .....

.....

feature 2 .....

description .....

.....

[4]

6 **(a)** Name **two** types of guidance and describe how each type of guidance could be used in a named physical activity.

physical activity .....

type of guidance 1 .....

description .....

.....

type of guidance 2 .....

description .....

.....

[4]

(b) Explain an appropriate type of feedback for a performer at the cognitive stage of learning.

type of feedback .....

explanation .....

.....

[2]

[Total: 6]

7 The photograph shows a professional tennis match.

(a) Describe **three** ways that technology has a positive effect on spectators attending a major sports event, such as a tennis match.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

(b) Explain how performers can use different technologies to enhance performance in a named physical activity.

physical activity .....

explanation .....

.....

.....

.....

.....

.....

[3]

(c) Suggest disadvantages that can result from the introduction of technology in sport.

.....

.....

.....

.....

.....

.....

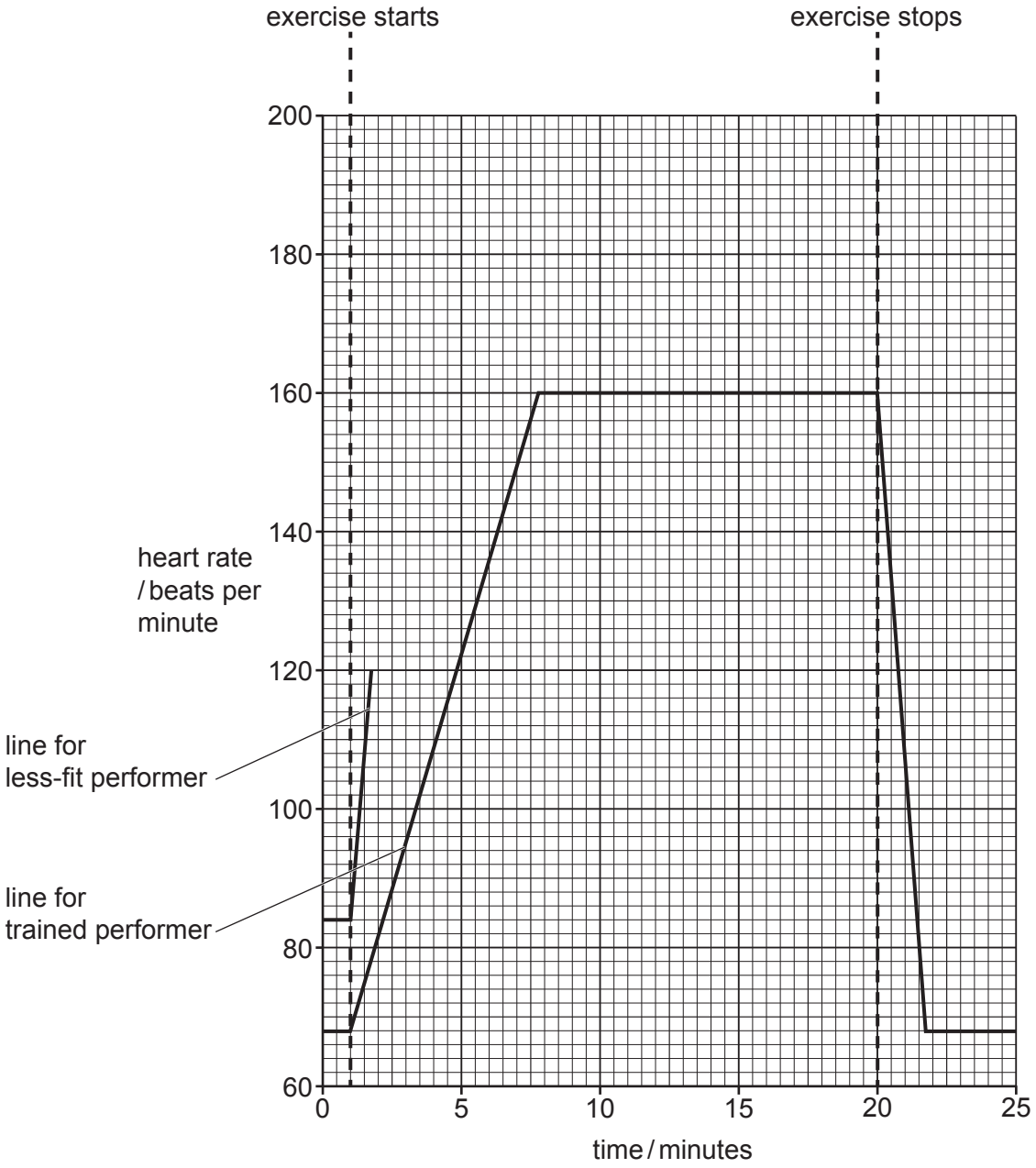
.....

..... [4]

[Total: 10]

8 The graph shows heart rate before, during and after a period of steady aerobic exercise for a trained performer and for a less-fit performer.

The line for the less-fit performer is incomplete.



(a) Calculate the difference between the heart rates of the performers before exercise starts.

..... beats per minute [1]

(b) Complete the line for the less-fit performer to show a suitable heart rate response during the period of exercise and recovery. [2]

(c) Suggest **two** reasons for the difference in heart rate between the trained performer and the less-fit performer during exercise.

1 .....

.....

2 .....

.....
[2]

(d) **(i)** Explain the term *cardiac output*.

.....

..... [1]

(ii) Calculate the cardiac output for a performer who has a heart rate of 150 beats per minute and a stroke volume of 90 ml.

cardiac output .....

unit .....
[2]

[Total: 8]

9 The photograph shows a sprinter holding the set position.

(a) Name and describe the type of muscle contraction taking place in the photograph.

type of muscle contraction .....

description .....

.....
[2]

(b) Name and describe a different type of muscle contraction that takes place in the legs when the sprinter starts to run.

type of muscle contraction .....

description .....

.....
[2]

(c) Identify **three** forces acting on a sprinter when starting to run.

1 .....

2 .....

3 .....
[3]

[Total: 7]

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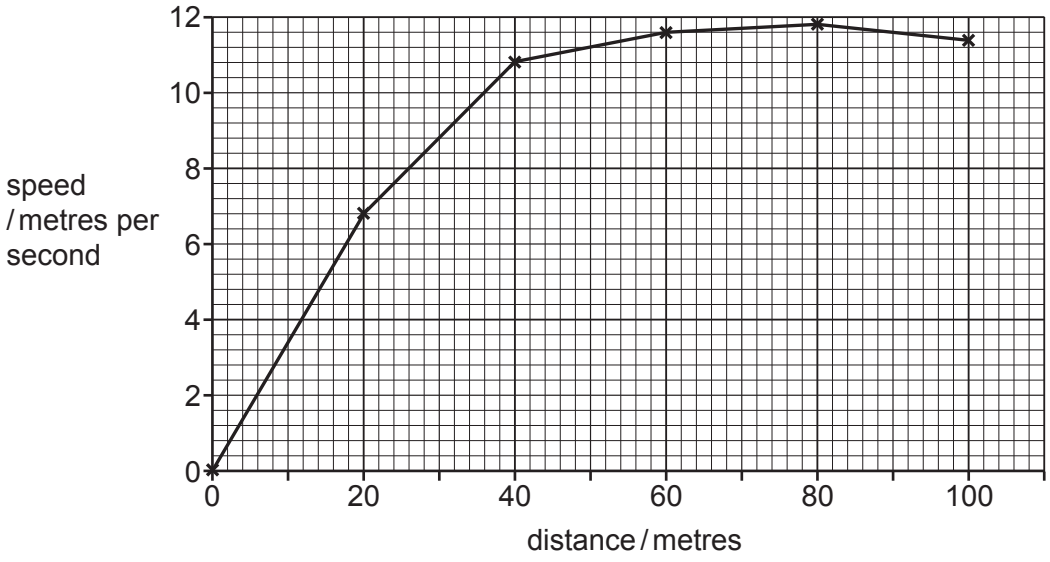
10 **(a)** The graph shows the approximate speed in metres per second of an athlete during a 100-metre race.



(i) State, using the graph, the maximum speed achieved by the athlete.

..... metres per second [1]

(ii) Calculate the distance the athlete was able to run at speeds above 10 metres per second during the race.

.....metres [1]

(b) Summarise how energy is released during a 100-metre sprint.

.....

.....

.....

..... [2]

(c) Describe the role of Excess Post-exercise Oxygen Consumption (EPOC) in aiding recovery after the race.

.....

.....

.....

.....

.....

..... [3]

(d) Explain how **two** factors can affect recovery time after the race.

1 .....

.....

2 .....

.....
[2]

[Total: 9]

11 State **two** factors that affect a performer's VO_2 max levels.

1 .....

2 .....
[2]

12 The diagram shows a skilled badminton player about to hit a shuttlecock.

The badminton player uses levers when hitting the shuttlecock.

(a) State **two** components of a lever.

1 .....

2 .....
[2]

(b) Explain how **two** forces act on the shuttlecock when it is moving through the air.

1 .....

.....

2 .....

.....
[2]

(c) Describe, using examples from a named physical activity, **three** characteristics of a skilled performance.

physical activity .....

1 .....

.....

2 .....

.....

3 .....

.....
[3]

[Total: 7]

13 **(a)** The picture shows a gymnast holding a position on the rings.

(i) Explain how **two** named components of fitness, other than strength, enable the gymnast to hold the position.

component of fitness 1 .....

explanation .....

.....

component of fitness 2 .....

explanation .....

.....

[4]

(ii) Name and describe **one** test to measure strength.

name of test .....

description .....

.....

.....

.....

.....

.....
[4]

(b) Describe **three** reasons for regular fitness testing.

1 .....

.....

2 .....

.....

3 .....

.....
[3]

[Total: 11]

14 **(a)** Name and describe **two** types of anxiety.

type of anxiety 1 .....

description .....

.....

type of anxiety 2 .....

description .....

.....

[4]

(b) Describe **two** possible causes of anxiety during a named physical activity.

physical activity .....

cause 1 .....

.....

cause 2 .....

.....

[2]

[Total: 6]

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15 The photograph shows an athlete completing a marathon race.

(a) Describe different benefits of **two** named nutrients, other than water, that enable the athlete to meet the demands of the event. State a food source rich in each nutrient.

nutrient 1 .....

benefit .....

.....

food source .....

nutrient 2 .....

benefit .....

.....

food source .....

[6]

(b) All performers need to drink water regularly when involved in physical activity.

Suggest **three** physiological effects on the athlete of **not** drinking enough water during the race.

1 .....

.....

2 .....

.....

3 .....

.....

[3]

[Total: 9]

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